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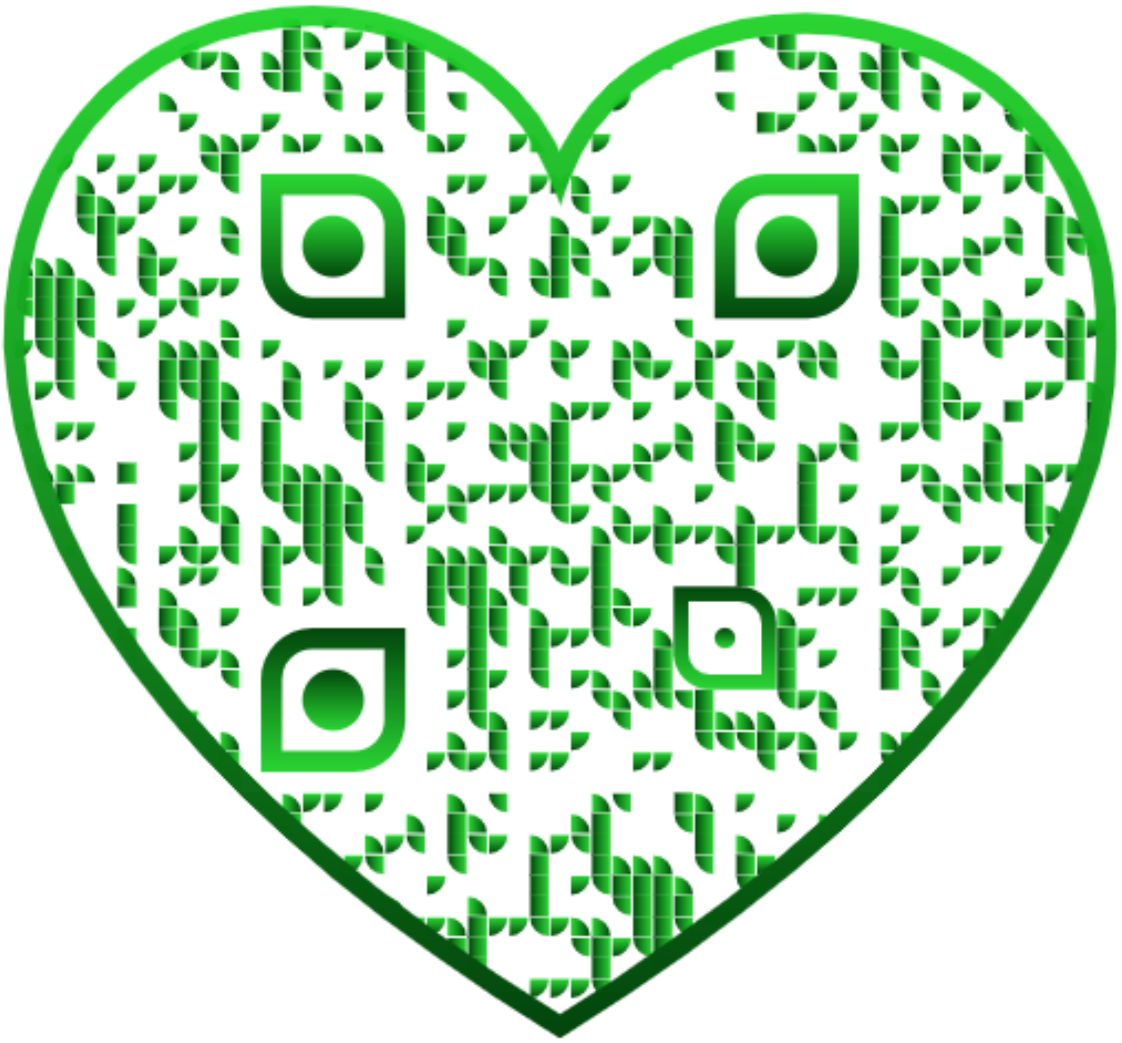

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NEXT ISSUE ON SALE
FRIDAY 14TH NOVEMBER

GOING FOR GOLD

My favourite restorations are those revealing more detail the longer they're stared at. The kind of build — at first glance, anyway — appearing a beautifully presented Porsche with a hint of personalisation, but demonstrating myriad unique touches as eyeballs gaze from one panel to the next. The kind of restoration pictured on the cover of this magazine, in fact. Yep, the longer you look at Paul Leyton's beautiful 1959-built 356 B T5, the more details it yields. The pulled-in bumpers, the lack of front indicators, the louvred decklid, the stitched 'stripes' spanning door card to engine bay. Nothing too outlandish, unless you count contrasting Gold Metallic with a bright green interior, though as regular readers will know, Paul has form in this department, as demonstrated by the pairing of orange paintwork and purple leather on his 911, as featured in these pages exactly two years ago. Has it really been that long?! Apparently so.

The other kind of restoration bound to excite me is the resurrection of a classic Porsche from circumstances making little sense to drag the car from, whether because the project is likely to prove prohibitively expensive (well beyond the financial worth of the finished build) or because conventional wisdom suggests the car is too far gone. Perhaps the fact I rescued a 944 Turbo from the hedge it had been living in for more than half a decade — and proceeded to commission restoration, despite a large amount of the car's metalwork being heavily corroded — colours my judgment?

Regardless, Paul's 356 ticks this box, too, having been seriously damaged by fire as a consequence of the new 911 GT3 RS it was parked next to going up in smoke. To make matters worse, the four-cylinder Porsche was not long from restoration in the USA and further work costing tens of thousands of pounds at a UK-based marque specialist. Yeesh.

Fortunately, there's little to dissuade a Porschephile on a mission from seeing a fresh restoration through to completion once they get going. And for this reason, we can be thankful for our star car's continued survival.

Dan Furr Editor
@FurrsFleet

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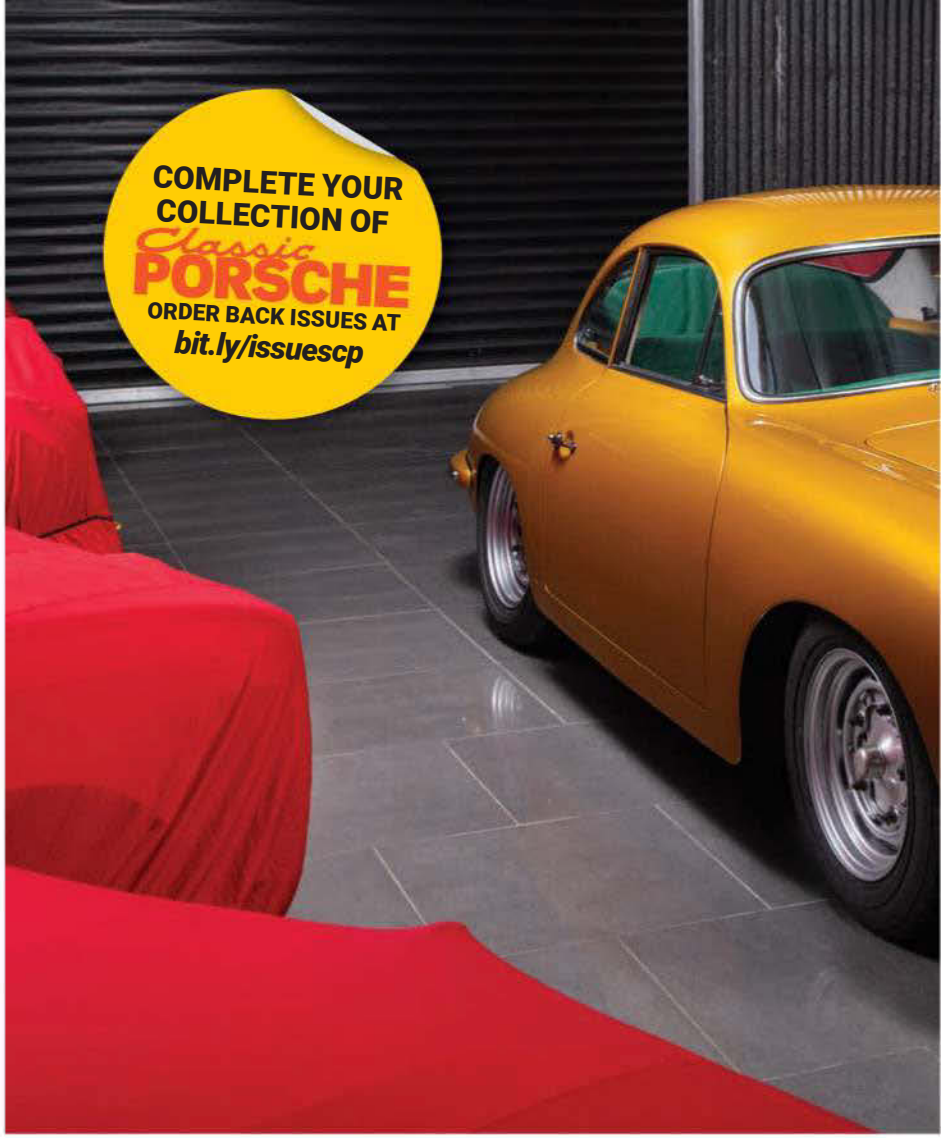

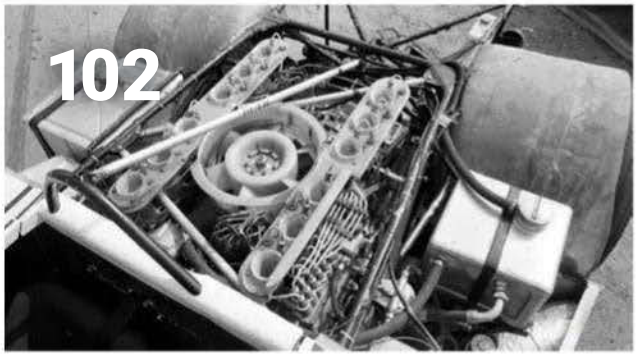

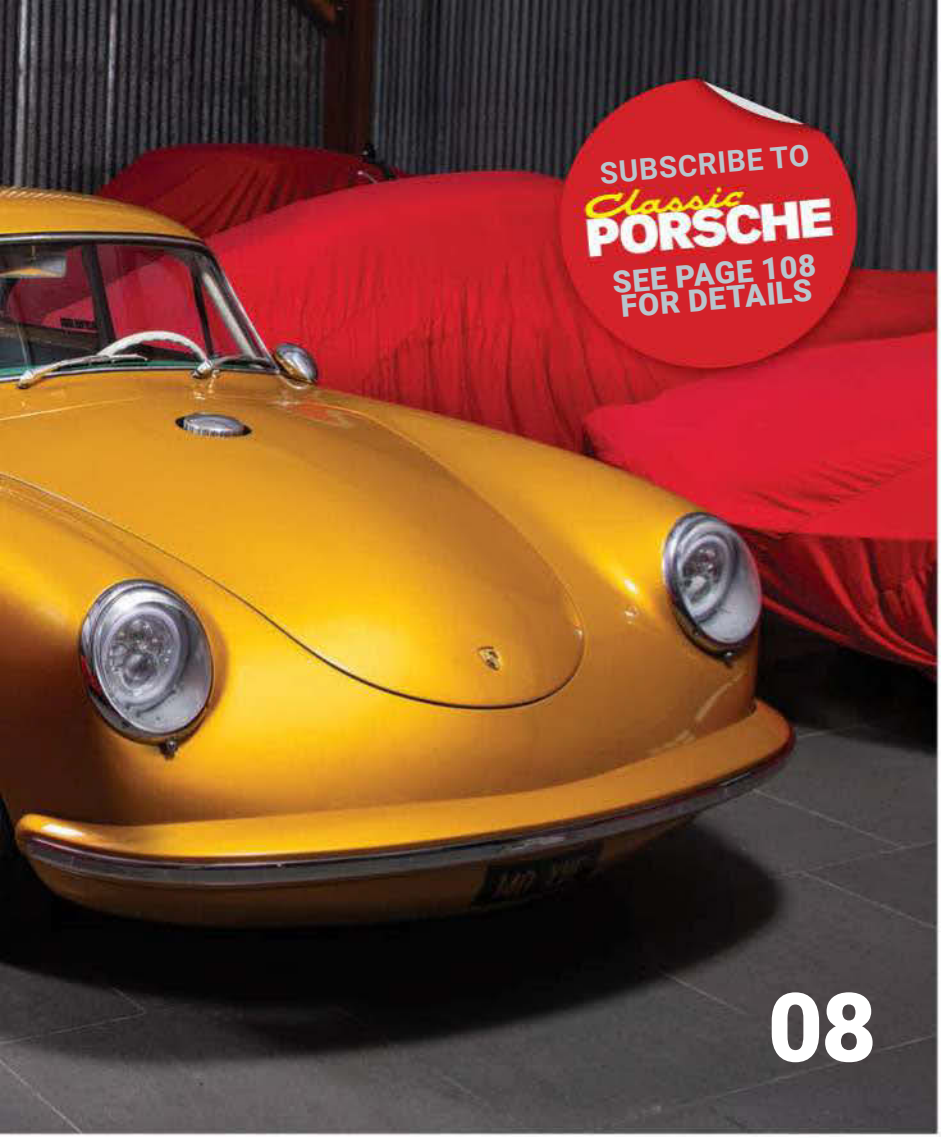

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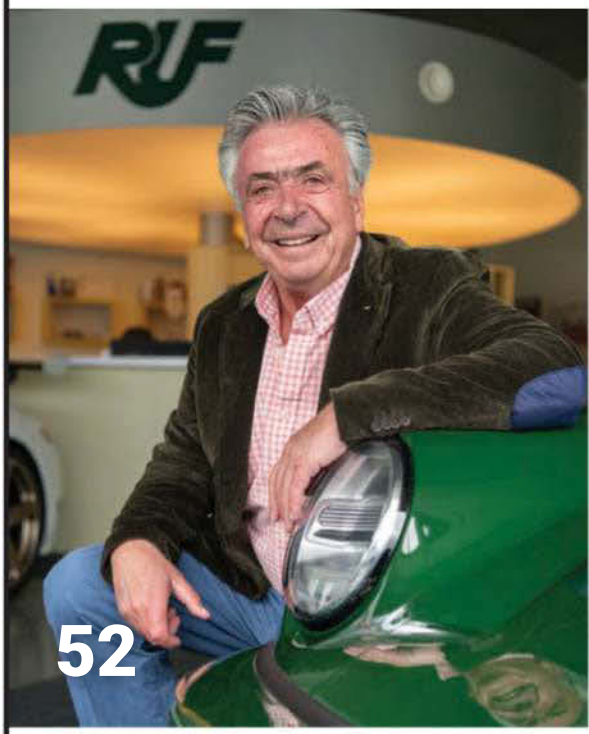


MIDAS TOUCH

Paul Leyton returns to the pages of *Classic Porsche* with his latest personalised P-car, taking the form of a gorgeous gold 356 B T5 previously involved in a fire claiming the life of a brand-new 911 GT3 RS...

Words **Dan Furr** Photography **Ade Brannan**

It's not unusual for us to be presented with photographs of a pristine 356 pictured prior to restoration. Such imagery serves to demonstrate just how much work was involved in turning the car in question from zero to hero. It's not often, however, we're genuinely taken aback by contrast in the vehicle's 'before' and 'after' condition. Then again, it's not often a Porsche is rebuilt after suffering extensive fire damage. Adding to the wow (gasp?!) factor, the car was fully restored before flames did their worst.

Our star car was manufactured in 1959 and was first registered in early 1960, making it an early 356 B T5. Originally Heron Grey and residing in Texas, the car was treated to full restoration in the not-too-distant past, at which point the factory paintwork made way for a coat of shimmering silver.

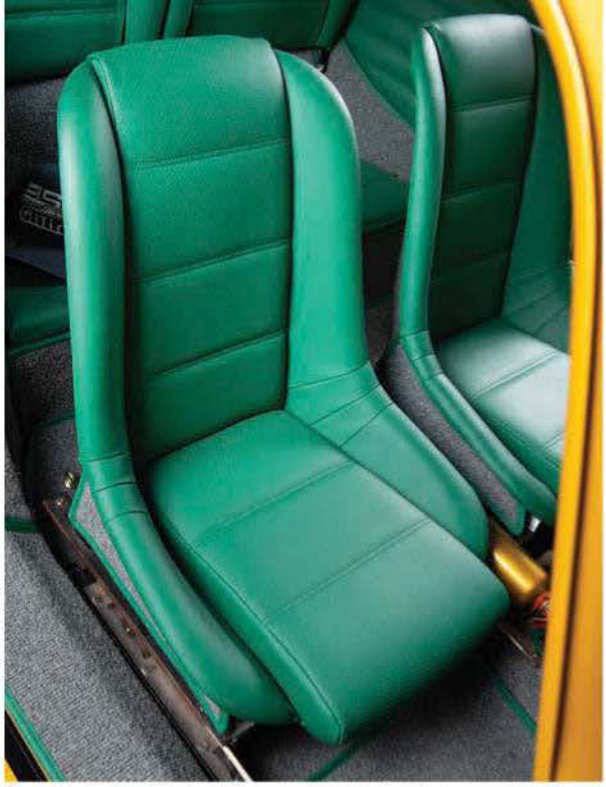
Not long after, the four-cylinder Porsche was sold to a buyer in the UK, who imported his new toy to Blighty and swiftly assigned it to the care of Prill Porsche Classics, the Braintree-based marque specialist recognised for its fastidious restorations of Zuffenhausen's historically significant road and race cars.

"The then owner spent almost thirty-five grand on the car not long after bringing it to Britain," reveals the 356's current custodian, Paul Leyton. If his name sounds familiar, then it's likely because you remember his zesty 911 from its showcase feature in the November 2023 issue of *Classic Porsche*. Resplendent in bright orange and featuring a striking purple leather interior, the car highlighted Paul's penchant for eye-popping automotive aesthetics, a pursuit he's continued to indulge with this 356. We'll come to his choice in finishes shortly. First, to Prill Porsche Classics.

"In Andy Prill's keep, the car's flat-four was fully rebuilt and oversized to 1,720cc," Paul continues. "Additionally, the braking system and suspension were fully overhauled, as were many aspects of the car not up to the standard the owner wanted from this Porsche, which was to form part of an extensive collection of Stuttgart-crested speed machines." Indeed, the car's owner continued to add to his fast fleet while the 356 was being worked on at Prill's base of operations in Essex, evidenced by the purchase of a new 911 GT3 RS.

In the interests of efficiency and weight-saving, new Rennsports are equipped with lithium-ion batteries. "The 356 was returned to its owner, who parked it next to his RS and went on holiday. Thing is, he'd connected a standard battery trickle charger to the 911's lithium-ion unit. The charger was designed for use with standard lead-acid batteries, leading

Above and below Damaged as a consequence of a new 911 GT3 RS deciding to kill itself, this 356 has been fully restored to its owner's preferences in style and comfort



Above Interior was trimmed by 13 Stitches and features a double stitching pattern spanning from the door cards to the engine bay

to overcharging and overheating." Fire followed. "The RS went up in flames," Paul grimaces. "It was obviously a write-off. The 356, which was sitting next to the 911, was also seriously damaged, but its wounds were confined to more or less only one side of the car on account of the angle it was parked. It's quite strange, really — among the casualties, the windscreen and all nearside glass was blown, the wing had ballooned, the corresponding damper had popped, all dash gauge glass had shattered, the headlining was destroyed and the front seats were totalled, but the floor mats were unaffected, as were the rear seats."

FORTUNATELY, THE FIRE DIDN'T TOUCH THE REAR OF THE CAR, MEANING THE ENGINE AND TRANSMISSION WERE SPARED DAMAGE

An insurance claim paid out, at which point the previously immaculate Porsche was transported to Riviera Autobody for assessment. Over the years, we've featured plenty of air-cooled classics given the Riviera Autobody treatment, all of which are truly eye-popping after love lavished on them by talented painters, Ty and Mick, but after assessment of the damage and an estimate for the necessary repair work, the 356's owner called it a day — following a sensible offer from Ty, he parted ways with the Porsche.

"I was frequently visiting Riviera Autobody's workshops in Wallington to check on the progress of my 911's metalwork and paint," Paul recalls. "I remember the 356 arriving and, a short while later, Ty explained he'd taken ownership of the car. He was planning an Outlaw build in the style of those produced by Emory Motorsports, but client work was constantly getting in the way of him making any progress. I'd long wanted to oversee development of a 356 restomod, but figured I'd missed the boat, the cost of acquiring an early air-cooled Porsche being what it is these days. I'd regularly joke with Ty, asking him how 'my' 356 was coming along, a thinly veiled hint at my desire to take possession of the car."

Eventually, Ty accepted time wasn't on his side and invited Paul to buy the flame-licked coupe, but on the condition body restoration and paint had to be carried out at Riviera Autobody. This wasn't the deal breaker some might have considered it to be — Paul wouldn't take his Porsches anywhere else.

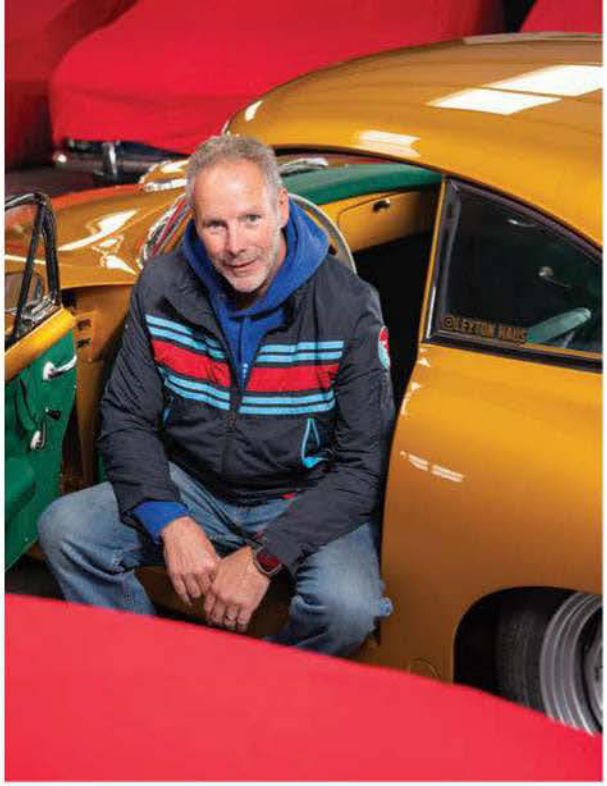
"Laser cleaning had become a big thing in the field of classic car restoration," he muses, referencing the increasingly popular non-contact, environmentally friendly process in which laser pulses are used to blast away rust, old paint and other undesirable surface material without damaging the underlying metal. "With the 356's fire-

damaged panels taken into consideration, I commissioned a guy to come over and apply a laser to them, but it proved a disastrous financial decision." Specifically, the service provider reckoned it would take half day to complete the treatment, but the alarm was raised when, a day and a half in, only the dashboard was complete. "Another guy had a go, but he too was taking much longer than suggested. In the end, I threw the towel in and asked Ty to arrange for the entire car to be shot-blasted, a quicker and cheaper process. Job done."

Fortunately, the fire didn't touch the rear of the car, meaning the engine and transmission were spared damage. New suspension and braking components were a must, though. Safety first, and all that. Additionally, shot blasting revealed evidence of poorly executed Stateside repairs, all of which needed to be addressed at Riviera Autobody. "The decision had been made to re-skin the doors," Paul tells us, "but the blasted metal revealed rust in the seams. In the end, we decided to buy new doors and sills from Dansk." As mentioned, the nearside wing had bulged in the intense heat emanating from the RS, but Mick managed to shrink the metal back to its original shape, with only a small repair required at the bottom of the panel.

The original frunk, bumpers and engine lid survived without suffering harm, but what was the plan of action for this once pretty Porsche? "I visited Rennsport Reunion at Laguna Seca, where I found myself surrounded by 356s of all varieties, including Outlaws," Paul confirms. "During the trip, I attended a 356 meet and was fortunate insofar as I managed to get a guided tour of the Emory Motorsports workshops in Oregon, where I was inspired by everything I witnessed. Rod Emory's work is next-level. Seeing the cars his team was working on, as well as those at Laguna Seca, gave me plenty to think about."

Above Engine was rebuilt and oversized to 1.7 litres at Prill Porsche Classics



Above Paul Leyton is no stranger to ownership of visually striking air-cooled Porsches, as his orange 911 proved when it was showcased in *Classic Porsche* magazine

Right LED headlights cost less than £30

Ty's preference was for a bumper delete, but Paul resisted, instead asking for the parts to be pulled into the body, creating a subtler look, one arguably only noticed if a standard 356 of the same vintage is parked adjacent. "It would be easy to remove the bumpers, but I reasoned this might be my only chance at a 356 build and therefore wanted to get it right, according to my personal preference," Paul reasons. "To pull the bumpers in, sort the returns, make the parts sit flush, took a week of Mick managing the metalwork, but I'm delighted with the result, which is just as I envisioned."

Similarly subtle (and necessitating a custom buck) is the recessed bonnet badge, reflecting what you'll find on a brand-new Porsche. Then there are those engine decklid louvres, which look as if they were pressed into the metal, but are, in fact, separate small panels Frenched into place by Mick's fair hand.

IRRESPECTIVE OF WHETHER THE CAR MEETS YOUR TASTES IN AUTOMOTIVE STYLING, THERE'S NO DOUBTING THE STANDARD OF WORK INVOLVED

Fortunately, blasting revealed no structural rot, other than corrosion in the heater trap beneath the fuel tank ("it resembled Swiss cheese"). A new panel was duly grafted into place and a new fuel tank was installed, the latter required due to the original part swelling under exposure to extreme heat, although, mercifully, not reaching the point of explosion. "If that had happened, well, this could be a very different story," Paul laughs, somewhat nervously.

His gut told him to finish the car in Aquamarine over a red interior, but during the build, he watched a video taken at a 356 meet in Portugal, where numerous examples of his favoured colourway were on display. "I remember showing my wife and the pair of us being somewhat deflated by the presentation of so many Aquamarine-over-red 356s. Suddenly, my vision didn't seem so special. A short while later, I was doom-scrolling Instagram and came across a reel of a Stateside classic 911 finished in the most amazing gold paint." He tracked down the 911's owner, who was more than happy to reveal his car was finished in the imaginatively named Gold Metallic, a seldom seen special order Porsche paint from 1972. Needless to say, Ty was instructed to mix a solvent-based sample, after which, a water-based version was created and applied to the 356's fully restored body.

Continuing to improve on the resurrected Porsche's exterior, Paul turned his attention to exterior lighting. He uses all his Porsches — not limited to this 356, a 964 Cabriolet and now including a Guards Red 968 coupe — as the manufacturer intended, hence the requirement for nighttime illumination better than the candles installed at the factory in period. "My orange 911 had amazing LED headlights, but they cost three thousand quid. They were good, but I'm not sure they were *that* good. I obviously needed to improve upon the 356's standard lights and took a chance on a pair of LEDs in seven-inch sealed beam units. They cost me less than thirty pounds and do the job brilliantly."

That's a major financial saving over the 911's LEDs, but there's more. Look closely and you'll note the lack of front indicators. "They're integrated into the outer rings of the headlamp units," Paul explains. "The sidelight is also in the outer ring, but it flashes orange when the turn signal is activated. This makes for indicators more noticeable at night. Put it this way, since completion of the build earlier this year, I've driven this Porsche almost two thousand miles and have yet to encounter complaint from other motorists."

Irrespective of whether the car meets your tastes in automotive styling, there's no doubting the standard of work involved in turning this 356 from derelict to delightful. Ruling the roost are small details, such as the missing overriders

from the recessed bumpers. “The original bumper trim is an aluminium strip with a rubber seal and inserts,” Paul reminds us. “I considered this arrangement too cluttered for what I intended to be a very clean car, which is why I asked a mate well-versed in manipulating metal to curve two strips of brass to span the width of each bumper. When the desired shape was realised, each brass strip was chrome-plated prior to installation.”

Again, the devil is in the detail, likely missed by anyone not familiar with the look of a standard 356 B.

The wheels are the very same steelies on the car when it was affected by the GT3 RS’s decision to spontaneously combust. Paul had previously purchased a set of seventeen-inch rims following the same design, but couldn’t get the rears to sit pretty due to the 356’s body narrowing toward the tail. Instead, the fierce-looking fifteens were blasted and powdercoated silver. Eschewing low-profile tyres, 185/70 black circles were installed, helping to deliver a comfortable ride, an aspect of the car greatly enhanced by the appointment of new Koni Classic dampers.

As mentioned earlier, Paul’s fruity 911 paired an orange paint job with a jaw-dropping purple interior. Not one to shy away from making a statement, he opted for a bright green cabin heavily contrasting his 356’s gold exterior. “The car was making use of Speedster seats, which I had blasted and powdercoated. Ty sorted the frames, while I visited independent fabric supplier, Boyriven, in Andover. The company’s showroom is amazing, with a high number of available fabrics and leathers on display for enthusiastic owners and restorers to peruse. I chose off-white Alcantara for the car’s headlining, with bright green leather for the seats, door cards and other upholstery.”

THE ‘STRIPES’ CONTINUE ALONG THE INNER QUARTER PANELS AND CAN BE SEEN EMERGING ON THE LEATHER INSERTS IN THE ENGINE BAY

Plenty of thought went into cockpit design, which was executed brilliantly by celebrated trimmer, 13 Stitches, a business sharing its name with a 2003 extended play by

Above Subtle exterior updates include louvres in the decklid, chrome-plated brass bumper trims and the bumpers themselves pulled closer to the body than standard

Above Riviera Autobody did a great job of grafting the louvred inserts into place, as well as accommodating a recessed frunk badge and cutout for the fuel filler

punk band, NOFX. The seat centres are perforated, and though double-stitching is immediately apparent, the 'rainbow' shaping of the stitching on the door cards curves from the bottom of each panel to a straight line by the time it reaches the rear. The resultant 'stripes' continue along the inner quarter panels, then curve into the parcel shelf and can be seen emerging on the leather inserts in the engine bay.

"The design was the result of various drawings I made on my iPad and fired over to 13 Stitches late at night," Paul chuckles. "There was plenty of toing and froing, particularly in relation to the curvature of the stitching on the door cards, but I'm pleased with the result, a collaborative effort between myself and the team at 13 Stitches, to whom I am immensely grateful for helping me achieve my goal."

The original steering wheel was toast, hence the appointment of a replacement, which is easier said than done in a period many 356 owners don't like to part with spare parts, even if they don't necessarily think they need them. "The factory steering wheel would have been black. I sanded this wheel and painted it white." We note the broken horn push. "It's a part subject to a lot of abuse. I don't mind the fact this one is cracked. Finding a suitable original steering wheel is difficult enough, let alone bagging one in pristine condition. I'm lucky — one of my mates has two forty-foot containers stacked full of old Porsche parts. He was happy for me to rummage around and buy whatever I needed as the 356 project progressed. Additionally, I acquired a stockpile of original components from the estate of a deceased Porschephile, who'd not long completed the restoration of a 356 before passing away. I bought the parts, my mate bought the car."

What of the gold 356's road manners? Paul sucks his teeth. "Here's the thing. My 911 was killer to look at, but I didn't enjoy driving it. The suspension was too firm, the ride too harsh. I took influence from the original 911 R and S/T when putting the car together, and this was reflected in the ride when the Porsche hit the road after restoration. I'd get out of it after a blast and not really want to sit in it again for a while. This 356, on the other hand, is really very comfortable. The fat tyres help, of course, contributing to a chassis encouraging me to take the car on long road trips. Also, the oversized flat-four raises power to a perfectly acceptable level for a sports car of this size and weight. It's a nippy thing."

For the time being, visits to 2025's summer shows, including Festival of Speed and Flat Six at Goodwood, not forgetting Cool Flo meets at Brooklands and various cars and coffee outings, have helped rack up the aforementioned near two thousand miles. Though not quite the proverbial phoenix rising from the ashes, this 356's near death experience has given its proud owner plenty of encouragement to keep piling on miles. This classic Porsche really is good as gold. **CP**

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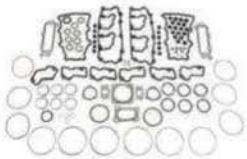
964/930



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Our look at what's happening in the wonderful world of air-cooled classics…

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2026 LA LIT AND TOY SHOW ANNOUNCED

Independent Porsche parts retailer, Stoddard, has revealed the date penned for the 2026 LA Lit and Toy Show, the highly anticipated annual event held at the Hilton Los Angeles Airport Hotel. Focusing on Porsche and Volkswagen memorabilia, literature, parts and toys, the gathering attracts hundreds of enthusiasts from around the world to buy, sell and trade items, including vehicle parts, vintage posters, books and die-cast models. The 2026 event, which will be held on February 28th, is the forty-second annual LA Lit and Toy Show and promises to be a stonker, with more than three hundred vendor tables already assigned.

Part of the Grand Porsche Weekend and Lit Week in Los Angeles, the show is supported by driving and shop tours of Californian Porsche specialists, as well as parties and social events. To this end, bus tours are available to area Porsche restoration shops. Interested attendees are invited to check *lalitandtoyshow.com* for details.

Spanning the two main ballrooms on the main floor of the hotel (located at 5711 West Century Boulevard in Los Angeles), this must-see event is far more than an autojumble for discerning owners and enthusiasts of air-cooled Porsches and Volkswagens. Expect a 356 car show, the SoCal All-Porsche Swap meet, various displays of vintage vehicles, but also good representation of early water-cooled 911s (996- and 997-generation Neunelfers). Previous LA Lit and Toy Shows have even attracted owners of cars from Porsche's transaxle family of products, not limited to the 944, the most successful Porsche sports car prior to arrival of the Boxster. On this note, the 914 — once Porsche's most successful product, despite common opinion suggesting the model was a failure — is also represented at this exciting event.

THE OLD GUARD

Stoddard (*stoddard.com*) was founded in June 1957 by Charles 'Chuck' Stoddard, an automotive engineer with Thompson Products (now TRW). Initially, the operation was located in a stillborn Tucker dealership and was known for being a 'fix anything foreign' repair shop. By 1969, Stoddard was one of only thirteen official Porsche dealers in the USA. In 1983, after twenty-eight years, Chuck relinquished control of the business — largely due to his many years working closely with Porsche AG, Stoddard was purchased by the manufacturer to facilitate worldwide expansion of support for older Porsche products, from the 356 and 911, to 912 and 914, as well as their competition counterparts. Chuck was retained as a consultant for a period spanning several years.

In November 2004, Stoddard ownership returned to the USA through the efforts of Bruce Schwartz. March 2011 saw the sale of Stoddard's Audi and Porsche dealerships to the Penske Automotive Group. The vintage Porsche parts business, however, continues under the Stoddard banner. Schwartz continued as President and owner of the parts operation before retiring in 2023. Control of the Stoddard brand transitioned to Maurice Endle.

Sadly, Chuck Stoddard passed away in 2019, but his legacy lives on, not least through the LA Lit and Toy Show, an event he championed and one which continues to be a highlight on the calendar of Porschephiles across the globe. See you in Los Angeles in February.

FUEL OF THE FUTURE ARRIVES NEAR PORSCHE'S UK HEADQUARTERS

Motorists and race teams from Berkshire and beyond can now power their vehicles with a biofuel blend, following the installation of the region's first Sustain pump at Richard Thorne Classic Cars, located near Porsche Cars Great Britain's headquarters in Reading. The thousand-litre overground fuel pump will offer accessible, high-performance fuel containing sustainable content for road and race applications alike.

Compatible with all engines using standard forecourt petrol, Sustain Classic Super 33 by Coryton allows drivers to reduce their environmental impact without replacing their current ICE vehicle. Compared to standard E10 forecourt fuel (which uses up to ten percent sustainable content, namely bioethanol), Sustain's offering contains thirty-three percent sustainable content and can be used without any engine modifications. It is also an E0 (ethanol-free) non-hygroscopic fuel, making it suitable for classic Porsches and ideal for those looking to put their car or bike into storage over winter.

Delivering greenhouse gas savings of up to twenty-five percent (when compared to standard fossil fuel), Sustain Classic Super 33 utilises second-generation biomass, such as food waste, straw, by-products and waste from crops not used for human consumption. This material recycles the carbon already existing in our atmosphere, rather than releasing additional CO_2 currently locked underground in fossil fuels.

A wider range of sustainable fuel will soon be available by the drum from Richard Thorne Classic Cars, including blends containing up to eighty percent

HAVING BEEN SUCCESSFULLY USED BY RACE TEAMS AND CLASSIC CAR BUFFS, SUSTAIN WAS LAUNCHED TO THE WIDER MOTORING WORLD IN 2023

sustainable content, delivering a sixty-five percent saving on greenhouse gas emissions. Specialist racing fuels fuel will also be available.

The company is renowned for preparing and running near thirty race-winning historic and modern cars across the world's most prestigious championships and events, from the Spa Six Hours and Le Mans Classic, to Silverstone Classic and Goodwood Festival of Speed. The team has already put Sustain fuel through its paces, successfully running its Morgan +4 Clubsport in the Morgan Challenge and supporting rising talent, Will Bibb, in his historic Morgan Plus 8.

Having been successfully used by race teams and classic car buffs following product launch a few years ago, Sustain was launched to the wider motoring world in 2023, with the UK's first public pump installed at Motor Spirit in Bicester. Since then, Coryton has seen growing demand for its biofuel blends and is now working to deploy a national network.

"As the first public forecourt in Berkshire to offer Sustain, Richard Thorne Classic Cars joins a global community of forward-thinking specialists looking to transform the future of transport," says Sustain brand director, David Richardson. "Sustainable fuels can be used today in our current cars and garages. Right now, we could be delivering crucial greenhouse gas savings, whilst ongoing efforts to embed the electric vehicle infrastructure are underway and further technologies are being developed. We need to raise awareness and increase accessibility, both logistically and financially, although the latter will only be achieved by securing the same government support currently afforded to EVs."

Sustain is fully certified, tested and developed in the UK at Coryton's world-class blending facility. Drivers wanting to find out more about the Richard Thorne Classic Cars product range and the firm's opening hours should hop online and visit *rtcc.co.uk/sustain-fuels*.

OWNER OF RESTORED 911 S/T 2.5 COMMISSIONS MODERN-DAY TWIN

Some stories are unfathomable — how this 2.5-litre 911 S/T could go from being a GT class winner at the 1972 24 Hours of Le Mans to a wrecked shell in a barn near San Francisco may never be fully known. The condition of the once-celebrated race car was devastating. What remained was rusty, bent or badly repainted. After its celebrated racing triumphs, this extraordinary 911 led a very different life indeed.

The last traceable race entry dates back to May 1975 in Riverdale, with then owner Don Lindley behind the wheel. After passing through two more owners, the trail of this rare 911 goes cold. The story resumed in 2008, when the first clues emerged, highlighting a potentially sensational barn find. Fast-forward to 2013, and a Swiss collector of vintage Porsches flew to California to rescue the S/T from obscurity and to restore the car to its former glory. Given its condition, this would be no easy task, hence the owner's decision to hand the work to Porsche Classic in Stuttgart.

Specifically, Porsche Exclusive Manufaktur in Zuffenhausen was given the remains of the S/T, which were completely disassembled and evaluated. After all, this legendary 911 was to be perfectly restored from the ground up. Once the bare body had been realigned on the Porsche Classic straightening jig, the painstaking process of replacing the missing parts began. In fact, with the help of original sheet-metal gauges and

THE RESTORATION IS IN PERFECT, FACTORY FRESH CONDITION, WITH EVERY DETAIL AS IT WAS WHEN THE S/T LEFT THE PRODUCTION LINE

factory technical drawings, many missing components were fabricated from scratch. Moreover, in excess of a thousand hours of manual craftsmanship went into the bodywork alone.

To preserve this work for the long term, the Porsche Classic team sealed the bare body with a cathodic dip coating. Essentially, this is state-of-the-art corrosion protection, as one would find on today's series production Porsches. After two and a half years of restoration, the car was finally delivered to its owner in 2016, complete with a lick of the original colour, Light Yellow (paint code 117), just as it had worn forty-four years earlier in the heat of battle at Circuit de la Sarthe.

The finished restoration is in perfect, factory fresh condition, with every detail just as it was when the S/T left the production line back in 1972. The period-correct sponsor decals were added after delivery and, as was the case during the car's class-winning victory at Le Mans, the doors were decorated with the starting number forty-one.

The same was applied to a modern-day 911 S/T, which now shares a garage with its forebear. Yep, at the owner's request, Porsche Sonderwunsch created a perfect companion for the Le Mans class winner. The newer 911's most striking feature is undoubtedly the identical paint finish in Light Yellow, a colour not in Porsche's standard palette for decades. The paintwork was applied by hand in a meticulous process and presented a particular challenge — the light shade offers low coverage, pronounced on the numerous carbon-fibre body components of the new S/T. Then again, this is precisely the kind of challenge the experts at Sonderwunsch are trained to master. Porsche completed the look with lightweight forged magnesium wheels in Darksilver, hiding black brake calipers. The technical foundation of the car remains untouched insofar as it runs normally aspirated four-litre flat-six revving to 9,000rpm.

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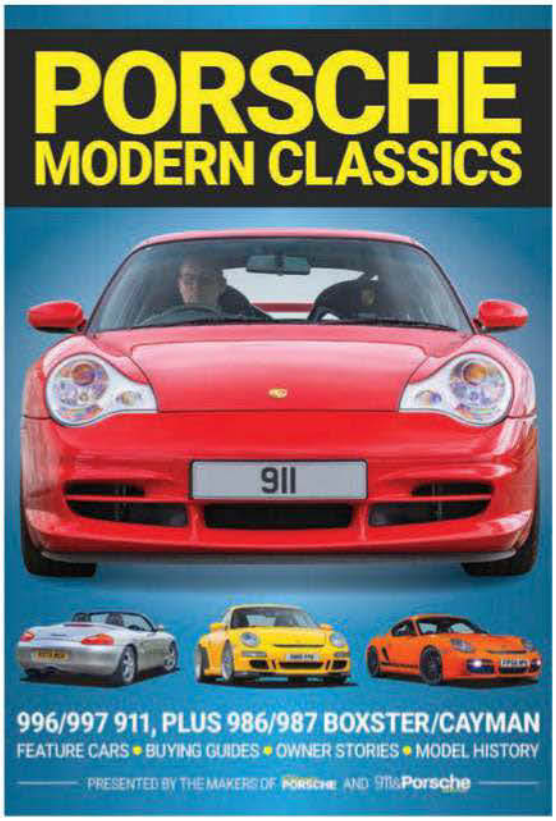
PORSCHE MODERN CLASSICS BOOKAZINE

From the team behind *911 & Porsche World* magazine comes this 164-page celebration of the 996- and 997-generation 911s and their Boxster/Cayman 986/987 counterparts. We chart the design and evolution of this hugely popular range of Porsches, going on to examine the long-lasting impact these cars have had on all subsequent Porsche products, not to mention the sports car world as a whole. Along the way, we get behind the wheel of standout models, delve into owner stories, explore ground-breaking engineering and show you what to look out for when on the hunt for an early water-cooled 911 or Boxster/Cayman to call your own. Essential reading for marque enthusiasts, this beautifully presented bookazine comes hot on the heels of our successful *Porsche Air-Cooled Classics* title and can be ordered at the link below.

Price: £9.99

shop.kelsey.co.uk/porsche-modern-classics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In 2004, after much investment in research and development, Joe Gibbs Racing launched its now famous range of Driven engine oils specifically for fast-road and race cars subject to frequent oil changes. Ignoring current road oil specification (which focuses on long service intervals), Driven oils include high anti-wear properties (primarily zinc), special preservatives and maintain oil stickiness after lengthy storage periods. We're talking about anti-rust, anti-condensation lubricants packaged in military-grade storage containers. Driven oils are ideal for modern and historic race cars, but also street Porsches not driven daily. Available in a wide range of grades, each Driven oil is up to ten times more unyielding to shearing (loss of viscosity) than standard API oils. Visit the website of distributor, Anglo American Oils, to view the full range on offer and available for immediate despatch.

Price: Varies

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GENUINE PORSCHE PARKING PADS

Presenting the most stylish way of positioning a Porsche in your garage, these genuine Parking Distance pads were designed by Studio FA Porsche in Zell am See, feature a red-and-white striped kerb design (taking heavy influence from track edges at race circuits) and feature the iconic Porsche logo at the rear. Suitable for Porsche cars and SUVs of all ages (in truth, suitable for any car) with wheels measuring twenty-two inches and under, the pads weigh approximately five kilograms and are manufactured from more than ninety-five percent recycled material. Suitable for indoor use only, the pads are sold as a pair and consist of a thermoplastic elastomer and a handle recess on the underside for easy transportation. Never bump your Porsche into your garage wall again. Probably.

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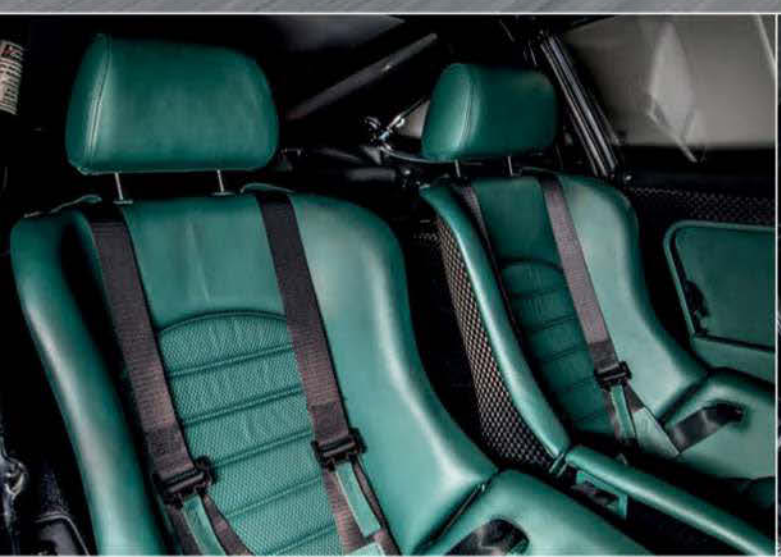

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RECOMMENDED READ THE PITS AND THE MULSANNE BY ROBIN DONOVAN

Many racing drivers aspire to compete in the 24 Hours of Le Mans, but few make it. In the 1980s and 1990s, when Circuit de la Sarthe was far more dangerous than it is today, Robin Donovan was one of only a handful of drivers to participate in this demanding endurance motorsport event on an outstanding fourteen separate occasions. Having endured as many misadventures as adventures, he describes his unconventional journey to achieving his personal goal (to compete at Le Mans against superstar drivers, including Michael Schumacher and Mario Andretti) in *The Pits and the Mulsanne*, a 350-page illustrated paperback independently released not long before this issue of *Classic Porsche* magazine went to print. Strap in and hold onto your hat for an epic, breathtaking and, at times, frightening 200mph ride of a lifetime as Robin takes you into the cockpit and behind the wheel. Enjoy his account of the ultra-high-speed world of racing through not only daylight hours, but the darkest of nights, sometimes in unforgiving, torrential rain. And join him in all the fun and the heartaches incurred along the way. A highly recommended read.

Price: £18

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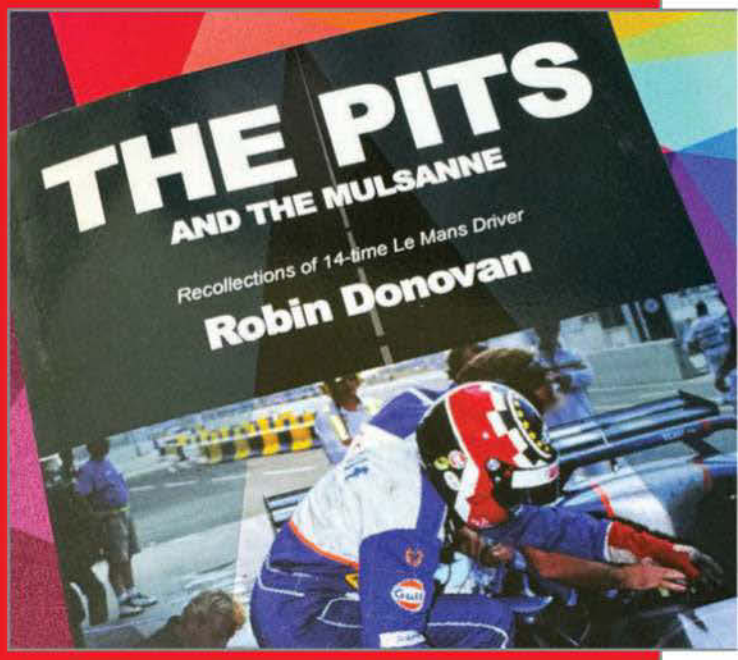

NEW DRAPER TOOLS FULL-COLOUR ENDOSCOPE INSPECTION CAMERA

This new inspection camera from Draper Tools features a semi-rigid five-millimetre cable, making it ideal for examining wall cavities, pipes and other narrow spaces, as well as for closely inspecting engines and hard-to-reach machine parts. The camera's brightness is adjustable — thanks to eight built-in LEDs — and features a large colour display, although black and white can be selected, as can adjustable contrast settings. The camera is rated IP67, meaning it can withstand short periods of immersion in water up to a depth of one metre and is suitable for use in dusty environments. Unlike endoscope offerings from other manufacturers, the inclusion of a high-resolution screen allows for real-time observation without the need for Wi-Fi or a mobile app. The device is powered by a rechargeable lithium-ion battery (providing up to five hours of run time) and is accompanied by a USB-C charging cable. Supplied with useful accessories, including a hook, magnet, mirror and three spare fixing covers, this excellent endoscope is one of many new and exciting products from Draper Tools and, as we've come to expect from the brand's output, is offered at a seriously pleasing price point.

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LN ENGINEERING 6061 BILLET VALVE COVERS FOR 993 FLAT-SIX ENGINE

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This pioneering work of art is the culmination of more than twenty years of Rennline's prestigious history designing and manufacturing the finest performance, security and styling solutions for air-cooled 911s. Manufactured from hand-laid carbon-fibre and featuring a 2x2 twill weave, this off-the-shelf frunk liner was designed in-house at Rennline's headquarters in Vermont using state-of-the-art 3D scanning and CAD technology. Available in different configurations to suit both F- and G-series 911s, as well as G-series backdates, and suitable for cars with manual or power-assisted braking, each frunk liner is supplied with all hardware required for simple DIY installation — multiple panels fasten together, allowing easy access to the fusebox, master cylinder, battery and strut mounts. No other currently available frunk liner (carbon-fibre or otherwise) covers all the surfaces of a 911 luggage area. Stunning, durable and designed from the ground-up, this is a fantastic addition to Rennline's portfolio of carbon-fibre products for air-cooled 911s. Order from the company's website, or that of specialist retailer, Pelican Parts.

Price: From $2,300.45

rennline.com* or *pelicanparts.com/rennline

KROON WIRE HARNESSES LOOM FOR 356 B

This superbly manufactured wire harness has been constructed specifically for the 356 B T6 by classic Porsche electrics specialist, Kroon Wire Harnesses. Adopting the same-coloured wiring Porsche used in period, this modern replacement loom features high-quality wiring recognised for being resistant to oil, battery acid, coolant and petrol. Hand-made to concours-quality specification, the loom features neoprone terminal sleeves (no shrink tube) and is designed to run along the host 356's tunnel, from the front fuse panel toward the engine bay. Functions include rear lighting, stop switch, generator, ignition and starter solenoid, among others. Sold complete with pre-mounted rubber protection tube.

Price: €679

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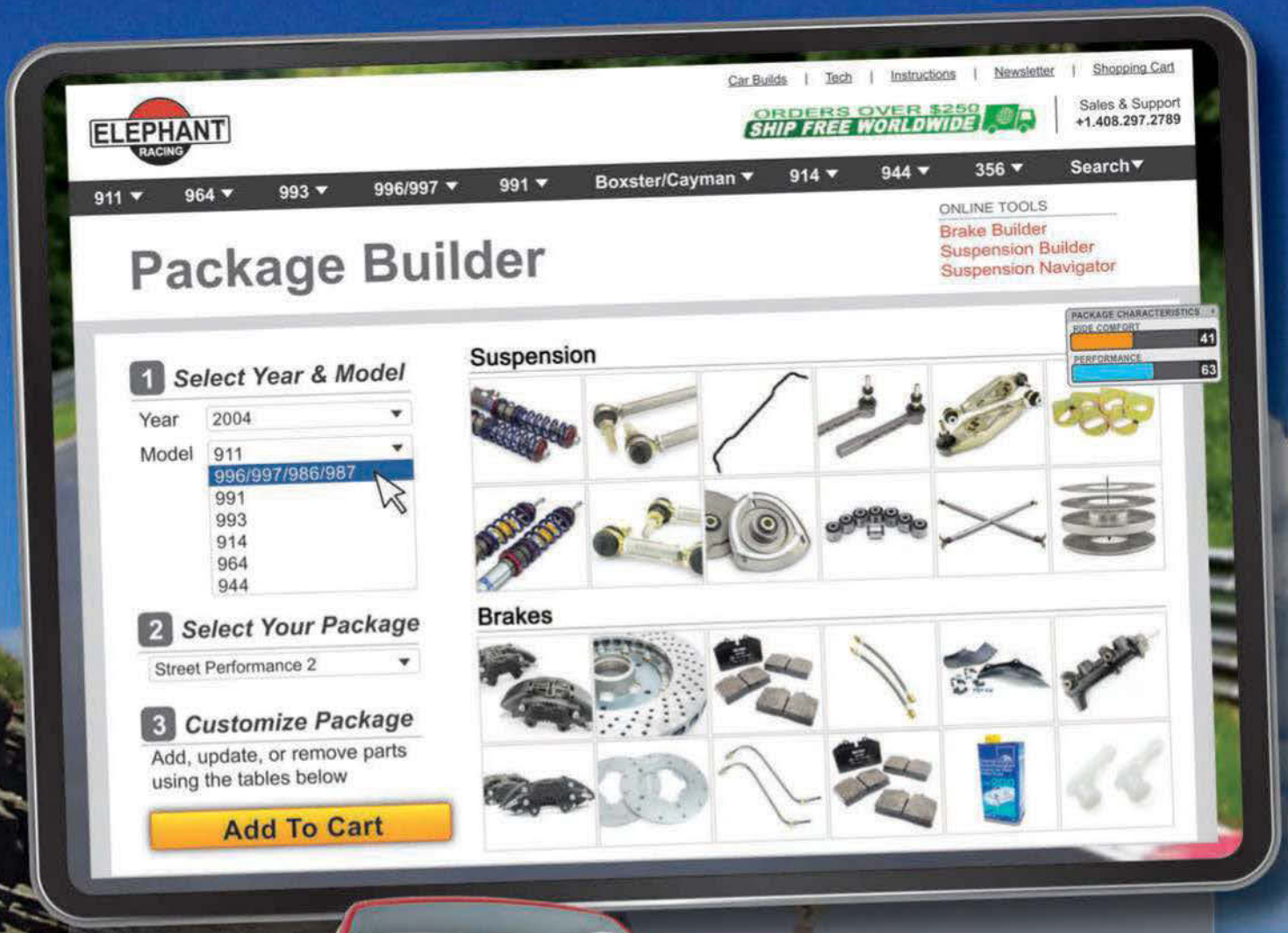

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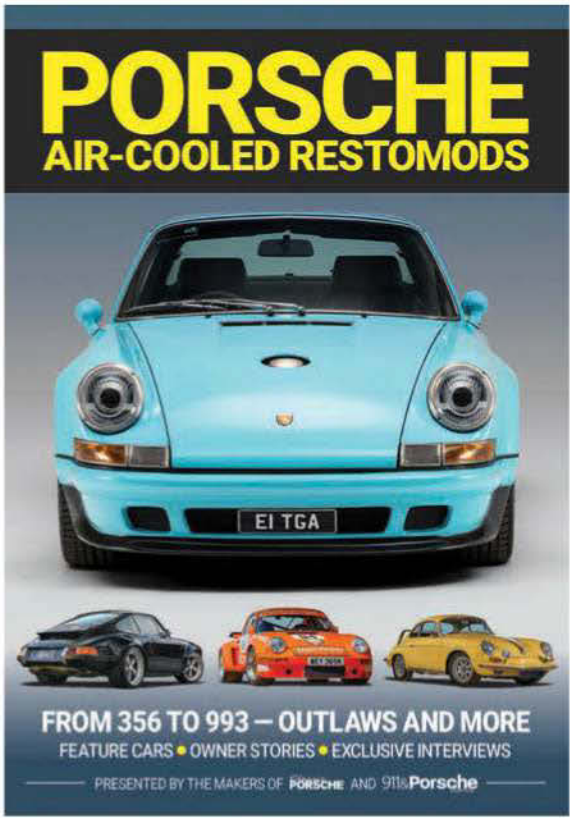
NEW BOOKAZINE AIR-COOLED RESTOMODS

Hot on the heels of our hugely successful *Air-Cooled Classics* and *Modern Classics* bookazines comes *Air-Cooled Restomods*, a 164-page celebration of modified classic Porsches. In this glossy, feature-packed publication, the team behind *Classic Porsche* and *911 & Porsche World* magazines travels far and wide to uncover a variety of extraordinary air-cooled Outlaws and restomods spanning the evolution of Porsche sports cars, from the 356 through to the 993, noted for being the final iteration of classic 911. Along the way, we get behind the wheel, delve into owner stories, explore ground-breaking engineering and salute the creators of these cars, as well as the Porsche restomodding scene they inhabit. We celebrate home-build heroes and big-budget professional projects, speak to industry professionals — including Rob Dickinson at Singer Vehicle Design and Nick Mebberson at Radial Motion — and look at leftfield approaches to bringing air-cooled Porsches into the modern era of motoring. Essential reading for marque enthusiasts, this brilliant bookazine argues the case for all classic Porsches being ripe for personalisation, citing the manufacturer's decision to offer its customers individual equipment from the early days of the 356, even if the brand didn't shout loudly about the fact. Fast-forward to the present day and we find ourselves at what many enthusiasts consider peak of the restomod scene, taking the idea of Porsche personalisation to dramatic new levels. *Air-Cooled Restomods* is available to order for home delivery at the link below.

Price: £14.99

Visit *shop.kelsey.co.uk/restomod*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WEBCON THROTTLE LINKAGE FOR 914

The 914 has long been an under-celebrated model in Porsche's back catalogue, which is why it's great to see this superb throttle linkage set designed and manufactured by Webcon for twin Weber IDF carburettor installations on the four-cylinder variant of the air-cooled, Targa-topped two-seater. Suitable for Weber 40, 44 and 48 IDF products, this brilliantly engineered kit will allow twin carburettors to be accurately balanced and provides smooth and consistent throttle action. Available to order direct from the Webcon website (part number 9900429500), the package includes balance shaft and levers, adjuster rods, springs, bearings, mounting plates, bolts, fixings and lubricant.

Price: £209.47

***webcon.co.uk* or call 01932 787100**

DANSK 356 SPEEDSTER BUCKET SEAT

The 356 Speedster is one of Porsche's most desirable products. Among the individual components which make the model so identifiable are its seats, specifically developed to fit the Speedster chassis and taking the form of a metal bucket pressed from a single sheet to ensure lightweight construction. JP Group (the parent brand of Porsche restoration parts manufacturer, Dansk) has re-launched the 356 Speedster seat as a family of chairs for enthusiasts to park in their showrooms, garages or other cosy environments. Bringing the exact seating position of the 356 Speedster from car to chair rack, this hand-crafted Porsche pew maintains the original bucket's seat angle. The framework is constructed from twenty-two-millimetre pipe with stabilisers in six-millimetre steel (choose between chrome or powdercoated black finishes), while the seat bucket is pressed from one-millimetre rigid deep-draw sheet metal. Order from Design 911.

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1959 Porsche 356A 1600 Reutter Cabriolet #18265

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1969 Porsche 912 Coupe #18659

A rare factory Blue Metallic coupe with an ivory interior; combining timeless style and spirited performance. Powered by a flat-four with dual carburetors and a 5-speed manual, it features chrome details, VDO gauges, and 15-inch chrome wheels. A collectible classic that's mechanically sound and ready to drive.

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1997 Porsche 993 Targa 6-Speed #18866

A striking Targa in Guards Red over Cashmere Beige pairs timeless design with thrilling performance. A 3.6L flat-six, 6-speed manual with speed-activated rear spoiler and signature sliding glass roof offers open-air freedom. With 17-inch alloys and service history, this example is both meticulously cared for and highly collectible.

For $76,500

1984 Carrera Sunroof Coupe #18888

An iconic air-cooled classic Coupe with matching numbers, West Coast provenance, and over $17,900 in documented service history. Powered by a 3.2-liter flat-six paired with a 5-speed manual, it delivers the performance and driving feel enthusiasts crave. This example is both well-maintained and highly collectible.

For $62,500

1973.5 911T Sunroof Coupe #18049

This is a well-documented classic Coupe with over $20,000 in receipts, includes a recent $8,927 engine service in 2023. This California car comes with its matching numbers engine and is finished in Sepia Brown over Beige/Tan, accompanied by its Porsche Certificate of Authenticity.

For $108,500

2005 997 Carrera S Coupe 6-Speed #18974

Presenting a low-mileage California Coupe showing just 69k miles, finished in GT Silver Metallic complemented with black interior combining timeless design with thrilling performance. Powered by a 3.8L flat-six and paired with a 6-speed manual. Striking 19-inch HRE performance wheels to complete its bold stance.

For $59,950

1993 968 Cabriolet 6-Speed #18823

A sleek Cabriolet with factory black finish over Cashmere interior and is powered by a 3.0L DOHC inline-four paired to a 6-speed manual. Equipped with air conditioning, cruise control, power seats, VDO gauges, fog lights, and 17-inch alloys, this example blends performance, style, and comfort.

For $26,500

1968 912 Soft Window Targa #14834

This classic air cooled Porsche comes with an owner's manual and receipt copies totaling more than $23,000. It documents extensive service work, including a crucial engine overhaul completed in 2021. Do not miss your chance to own a piece of automotive history with this 912 Soft Window Targa that is mechanically sound.

For $79,950

1976 Porsche 911S Coupe #18217

Presenting matching numbers 911S Coupe finished in a rare Emerald Green Metallic over Cinnamon, powered by a 2.7L fuel-injected flat-six with a 5-speed manual. A highly desirable color combination and sought-after model, this example is both collectible and mechanically sound.

For $108,500

1995 Porsche 993 Cabriolet #18748

Presenting this low-mileage Guards Red Cabriolet, showing just 26,046 miles on the odometer. Accompanied by service records totaling $9,739.51 from October 2006 through May 2024, this well-documented example has been carefully maintained throughout its life. A rare opportunity to own a beautifully preserved 993 Cabriolet that is both mechanically sound and highly collectible.

For $89,950

1987 Porsche Carrera #18782

Accompanied by a clean CARFAX, this air-cooled classic is both stylish and mechanically sound. It has its matching numbers engine and finished in Zermatt Silver Metallic complemented with a linen interior. Powered by a 3.2L flat-six paired with a 5-speed manual. Equipped with a soft top, Bosch lighting package, Fuchs-style wheels, and air conditioning.

For $48,500

1989 Porsche 930 Coupe #14613

This supercar, upon introduction, held the title of the fastest production car in Germany. The 1989 model year stands out as the first and only year the 930 was equipped with a Getrag G50 five-speed manual transmission, making it one of the most sought-after iterations of the Turbo. A rare opportunity to acquire a historically significant and highly collectible Porsche.

For $259,500

1963 Porsche 356B 1600 #18912

Introducing this rare and desirable Super T6 Cabriolet, presented in its factory color combination of Guards Red with a Black leather interior. This matching-numbers example is one of only 931 Reutter T6 Cabriolets built in 1963. This Cabriolet embodies the timeless elegance and enduring investment potential of the 356 lineage and is mechanically sound.

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IN THE BLOOD

With both father and son achieving elite-level motorsport success from behind the wheel and in the workshop, family-run race car preparation specialist, Jordan Racing Team, is fast becoming the first name in historic Porsche motorsport...

Words **Dan Sherwood** Photography **Ade Brannan**

Walk into the achingly clean workshop of historic race car preparation outfit, Jordan Racing Team, and you're blinded by a rainbow of brightly coloured racing liveries. Familiar brand names are mingled with the not-so-familiar, wrapped tightly in their disparate corporate colourways around the unmistakeable curves of Zuffenhausen-built machinery. The walls of this Lichfield-based facility are no more restrained, every inch plastered with eye-catching posters depicting the Jordan family's many racing accomplishments across almost half a century.

The Jordan Racing Team story stretches back to 1979 and the purchase of a humble Morris Minor. Mike Jordan, the literal father figure behind the team, bought the car for £750 after securing numerous bank loans to fund the purchase of what was proposed to be the restoration of an iconic British classic. This was no ordinary road car, though — he'd bought a race-prepared Moggy and intended to put it to good use by competing in the Classic Saloon Car Club's Pre-1957 Championship.

A talented wheelman, Mike learned the ropes quickly. His racecraft radically improved, leading to him secure the championship's title on his first attempt. This early win represented a small-but-significant step on the ladder to what would become a successful racing career. It also

springboarded him to a brief dalliance in Formula Ford. Here, monetary constraints meant he could only compete in select rounds of FF1600, FF2000 and Sport 2000, but what he lacked in overall seat time, he gained in his understanding of the technical nuances of race cars. It was after making the move to touring cars and GT racing, however, that he truly made his name, entering the arena of Porsche motorsport and earning recognition as a skilled and determined driver.

His transition to Stuttgart's finest came about by chance, when, upon the death of his father, Mike inherited £8,500 and used the unexpected windfall to purchase a 1973 911 E. Working as a mechanic in a TVR garage at the time, he couldn't afford to put the Porsche into battle on a race track, but a chance encounter with a willing sponsor from the mobile and telecoms industry gave him the funds he needed to enter the car into the Porsche Pirelli Championship.

Mike raced the road-legal Neunelfer in the coveted one-make series, where he would drive to the track in the car with his wife, Judith, and daughter, Sarah, before contesting a race and driving home again. The peculiarities of the 911's rear-engined layout played to his strengths — in 1987, he won the series outright, a feat he managed to repeat in 1991.

By the early 1990s, Mike's technical expertise and natural racing talent led to the formation of Eurotech Racing, a team designed to prepare and run racing Porsches for a variety of clients. While he continued to race (further growing his

reputation with each event he participated in), Eurotech Racing became renowned for its engineering prowess, preparing cars for a range of customers, from amateurs to professional drivers, cementing itself as a business forming the bedrock of the Jordan Racing Team legacy.

Since his first Porsche Pirelli Championship victory, Mike has enjoyed a long and successful racing career with 911s, including taking a legendary win on the street circuit of the 1988 Birmingham Super Prix, where he piloted a Carrera RS 2.7. He also contested two rounds of the 1988 British GT championship in a 993 GT2, before completing a full season of British GT (in 2000) in a 996 GT3 R, which he shared with Mark Sumpter, founder of independent Porsche sales specialist, Paragon.

AROUND THE WORLD

Over the years, Mike entered countless other races in 996-generation 911s, whether in GT3 R, GT3 RS or GT3 RSR specification. These outings included the 24 Hours of Daytona, as well as daylong enduros at Spa and the Nürburgring. Even when he wasn't behind the wheel, he notched up numerous successes, a result of victories achieved by cars prepared and run by Eurotech Racing. One of the most historic of these is the unbeaten run of seventeen wins from seventeen races by Johnny Mowlem, who drove an AFN-backed 993 run by Eurotech Racing in 1997's Pirelli Porsche Cup tournament.

The team took a step away from Porsche in 2006, taking a bold leap into the British Touring Car Championship (BTCC), with Mike piloting a Honda Integra, marking a new chapter in the firm's storied history. With John Guest providing headline sponsorship, the team enjoyed remarkable media attention, showcasing the incredible value it could deliver to its commercial partners. This move represented a significant shift for the team — Mike was now operating in one of the UK's most highly regarded (and hugely visible) motorsport series. He continued to race, but it was his eldest son, Andrew, who began to emerge as a rising star in the sport. A gifted driver from a young age, he'd earned recognition in Junior Rallycross at just fourteen years old. At sixteen, he became the youngest winner in British Rallycross Supercars, driving a formidable 550bhp Ford Focus. His rise

Above One of many classic 911 restorations by Jordan Racing Team, this short-wheelbase 911 was prepared for the single-make Peter Auto 2.0L Cup

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- Seat in black leatherette with pepita seat surface

Emergency seat set with covers for the Porsche 911

Pepita

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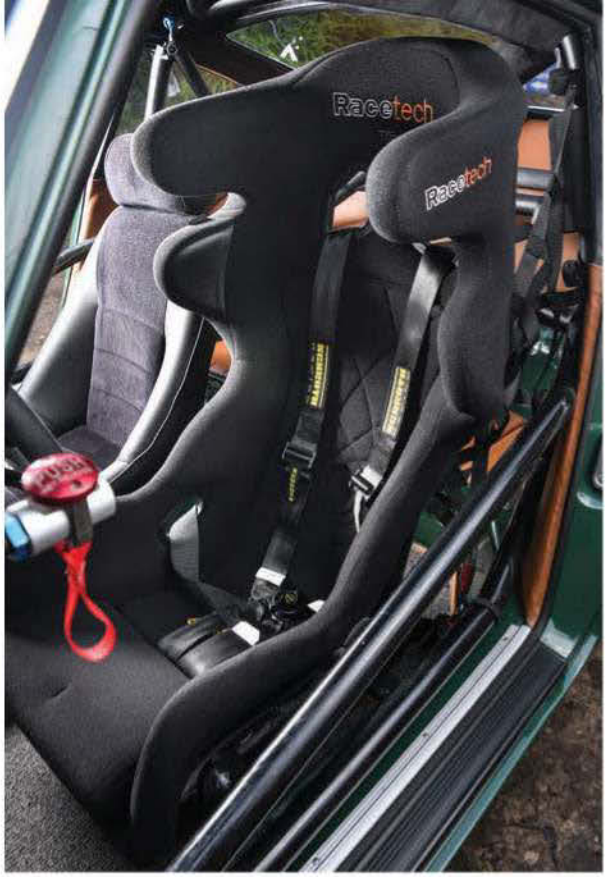

Above Not exactly how Porsche configured the car from factory

Facing page Jordan Racing Team restores competition 911s of all ages

to prominence was nothing short of meteoric. It was clear the Jordan family's involvement in motorsport was destined to evolve further.

In 2008, Mike and Andrew made history by becoming the first father-and-son duo to race together in the BTCC. They did so under the Eurotech Racing banner. This remarkable milestone not only showcased the depth of driving talent within the Jordan family, but also symbolised a shift in focus toward Andrew's career. Needless to say, as his skills and success on the track grew, he increasingly became the focal point of team's future. 2013 was a landmark for both Andrew and the entire Jordan Racing family. Under the Pirtek Racing banner, he won the coveted BTCC Drivers Championship, a monumental achievement for a small, private team going up against larger, better-funded (often manufacturer-backed) competition. This triumph was testament to the team's dedication, skill and ability to compete at the highest level, proving with hard work, the right mindset, and the guidance of a seasoned crew, even the smallest of competitors can stand on the podium at the top of British motorsport.

OTHER 911s BEING WORKED ON AT JRT INCLUDE A FREISINGER MOTORSPORT 996 GT3 RSR AND A KELLY MOSS 996 GT3 RS

Following his success in BTCC, Andrew continued to race with various touring car teams until 2019. The link between the Jordan family and the Eurotech Racing brand ended five years earlier, when an opportunity arose for a buyer to take control of the team. With the capital released from the sale, Mike and Andrew saw a chance to focus on a new chapter in their motorsport journey, namely historic racing under the banner of their new enterprise, Jordan Racing Team.

The first historic racer to be built by the brand was an Austin A40, assembled to satisfy regulations governing the 2014 Goodwood Revival. From the outset, it was clear the car was a cut above, certainly in terms of presentation and speed. Before long, others were demanding Jordan Racing Team's race car preparation services. Familiar faces, in fact, not least Mike's old teammate, Mark Sumpter, who was one of the new company's first customers, commissioning the build of a Lotus Cortina for historic racing. Further commissions followed. In no time, the firm's reputation for excellence in historic racing had expanded across the UK and into mainland Europe.

The team participated in a variety of prestigious events, including the Goodwood Revival and Goodwood Members Meeting. Cars prepared by Jordan Racing Team also competed in prominent Peter Auto events across Europe, regarded as some of the most highly regarded historic races anywhere in the world. Success in these high-level events helped elevate Jordan Racing Team's profile, attracting a wide array of customers seeking the team's expertise not only in race car preparation, but also in the restoration of classic cars.

Jordan Racing Team garnered attention across the Atlantic, too. Notably, the team secured victories at the prestigious HSR Daytona and Sebring Historic Classics, further establishing the brand as a force to be reckoned within historic racing. It seems strange, then, when visiting a firm heavily involved in historic motorsport, for us to note a dearth of air-cooled 911s — each of the ramps we're presented with is occupied by a water-cooled Porsche. There is good reason for this, as Andrew explains.

"The 996 and first-generation 997 are more than twenty

years old and are therefore officially classified by Porsche as classics. These 911s are also of an age making them eligible to compete in many historic race series. Moreover, retired 996 and 997 race cars are becoming an increasingly popular option for gentleman drivers wanting a fast, reliable and relatively affordable 911 to get their racing kicks."

FAST AND FAMOUS

Evidence of this trend can be found strewn around the vibrant Jordan Racing Team workshop, which plays host to instantly recognisable 996 and 997 racers. On one ramp, for example, we spy the iconic silver and red livery of the Flying Lizard 996 GT3 RSR, a car in which Mike and Andrew won at Spa when participating in the Peter Auto Endurance Racing Legends event last year. "This particular 911 was the very first car from Flying Lizard, back when the team was established in 2003," Andrew reveals. "It was purchased direct from Porsche Motorsport North America as a 996 GT3 RS after being fully rebuilt, as-new, following the two years it spent as part of the works-supported Alex Job Racing Team in the American Le Mans Series. The car competed in races in Grand-Am and ALMS, including the 12 Hours of Sebring, securing a win at Watkins Glen. It was converted to RSR specification by Flying Lizard in 2004."

Jordan Racing Team purchased the car at the close of 2023 and has since invested a huge amount of time and energy in bringing it back to its best. As is often necessary with historic racers, the suspension has been crack-tested and vapour blasted, a new fuel tank has been installed, the transmission rebuilt and a period-correct MoTec digital dashboard and datalogger are in situ."The famous Flying Lizard livery has been painted, rather than applied with vinyl," Andrew confirms. "This approach gives a seamless finish. It was a difficult undertaking, not only because of the necessity for precise application of paint, but also the extensive research required to get the design correct — race car liveries continuously change, often from race to race."

Other epic 911s being worked on at Jordan Racing Team include a yellow, white and green Freisinger Motorsport 996 GT3 RSR and a Kelly Moss Motorsport 996 GT3 RS, easily identified by its eye-catching 'stars and stripes' theme. "Prices for these machines can vary wildly, depending on their provenance, such as the team raced for, which drivers took to the wheel and which races they won," Andrew continues, "but

Above Shakedown at Silverstone provided an excellent opportunity to put the engine through its paces before the heat of battle

Above and below
The early 911's simplicity of design is one of its key strengths, as this green machine convincingly shows

whatever the car's history, all have to go through the same process to be eligible for today's historic motorsport events."

The process involves the car being stripped of all its running gear, which is professionally crack-tested via x-ray to ensure strength and therefore safe operation. Any part found to have even the most minute of fractures must be binned and replaced if the car is to be awarded a clean bill of health and a certificate of compliance to race. "Luckily, replacement parts for 996 and 997 race cars are much easier to come by than those for air-cooled 911s," Andrew tells us. "In fact, most components are available direct from Porsche, which makes life a lot easier than it otherwise would be."

When the car is stripped to a shell, the team focuses on bodywork, rectifying any damage in advance of sending the vehicle for a full repaint, incorporating its original livery. "We don't tend to touch the cabin. It's very difficult to achieve the same finish as was adopted by teams in period. Owners like to retain as much originality as possible, hence us leaving the cockpit free of a respray."

EACH CAR RETURNS TO JRT FOR REASSEMBLY, WHERE THE COMPANY'S TECHNICIANS APPROACH BUILDS WITH PEDANTIC ATTENTION TO DETAIL

Once the paintwork is finished and wiring looms are refurbished, each car returns to Jordan Racing Team for reassembly, where the company's technicians approach builds with pedantic attention to detail. All this isn't to say Jordan Racing Team doesn't offer its services to owners of air-cooled 911s, but the process is somewhat different. "Our historic builds are rarely based on existing race cars," Andrew highlights. "They tend to be constructed from scratch using a standard 911 as the starting point. The car will be stripped back to bare metal before being painted and rebuilt in accordance with FIA regulations required for whichever competition the car is destined to compete in. More often than not, these strict rules ensure the car represents identical specification to the same class of 911 campaigned in period. The only deviation allowed from the original design is the installation of modern safety equipment, such as bucket seats, harnesses, a safety cage, fire extinguishing equipment and an up-to-date fuel cell. Otherwise, specification is exactly as it was back in the day."

Despite much of their time being consumed by running the business, neither Mike nor Andrew have lost their competitive edge, evidenced by the fact both race in the Mini Se7en and Mini Miglia Championships. Their achievements in these

series is testament to their enduring driving ability and love for racing, even as they focus on delivering exceptional service for their ever growing customer base.

Though early water-cooled 911s represent the majority of Jordan Racing Team's Porsche work, air-cooled cars remain a key feature. The short-wheelbase 911 on these pages, for example, was painstakingly restored with the Peter Auto 2.0L Cup in mind. "We completed a shakedown test of the car at Silverstone in early 2024," Andrew tells us. "It's a fun Porsche to drive, but very tricky to master. A 911 of this nature demands the driver balances oversteer, primarily because of the position of the engine. As you'd expect, we've raced a high number of classic Porsches over the years, but when it comes to handling, this is the one flavour of 911 the driver has the ability to influence more than any other. It's very sensitive to trail braking. A bit too much pitch on turn-in can result in a large amount of oversteer." Indeed, it's easy to over-drive these cars.

"Later braking might mean more brake pressure on turn-in, which will again cause understeer," Andrew continues. "These really are cars requiring the driver to exercise discipline, to not try too hard. It's important to keep momentum and apply early throttle application to help squat the rear and improve traction. It takes a bit of thinking about, especially when the car is sliding and you're tempted to apply more throttle than is required."

From its beginnings to the present day, Jordan Racing Team remains very much a family affair. Judith plays a crucial role in the team's operations, managing day-to-day matters, while Sarah serves as office manager. Meanwhile, Andrew's younger brother, Bradley, has started to make a name for himself, competing in the Mini 7S class.

THOUGH WATER-COOLED 911s REPRESENT THE MAJORITY OF THE TEAM'S PORSCHE WORK, AIR-COOLED CARS REMAIN A KEY FEATURE

As Jordan Racing Team continues to thrive in the world of historic motorsport, the company's commitment to excellence remains unwavering. With a rich legacy built on technical expertise, the Jordan clan is poised for continued success. Whether in the preparation of modern-classic or historic race cars, competing in their own incredible fleet of Porsches, or continuing to set the standard for trackside support at the world's most prestigious historic motorsport events, Jordan Racing Team's story is far from over. With Mike and Andrew leading the charge, the business is set to build on its already impressive legacy, ensuring the Jordan family name remains synonymous with passion, performance and perseverance in the world of Porsche motorsport for many years to come. **CP**

Above The view you're most likely to see of this 911 through the windscreen of your car on a track

911 GT3 (991.2)

Carrara White Metallic • Black 918 Bucket Seats • PDK Gearbox • 20" GT3 Centre Lock Wheels • Porsche Ceramic Composite Brakes • Clubsport Package • Previously Sold & Serviced by Paragon • 16,648 miles • 2017 (67)

£124,995

Cayman GT4 (718)

Crayon • Black 918 Bucket Seats PDK Gearbox • 20" GT4 Wheels in Satin Aurum • Clubsport Package Touchscreen Satellite Navigation Sport Chrono • Switchable Sports Exhaust • 14,553 miles • 2021 (71)

£81,995

911 Turbo (997.2)

GT Silver • Black Leather Seats PDK Gearbox • 19" Turbo II Wheels Touchscreen Satellite Navigation Sport Chrono • Bose Sound System Rear Parking Sensors • 39,756 miles 2010 (10)

£69,995

Boxster 4.0 GTS (718)

Carmine Red • Black Half-Leather Sports Seats • PDK Gearbox • 20" RS Spyder Design Wheels • Switchable Sports Exhaust • GTS Interior Pack Touchscreen Satellite Navigation 22,489 miles • 2021 (21)

£64,995

911 Turbo (996)

Arctic Silver • Graphite Grey Soft Ruffled Leather • Manual Gearbox 18" Turbo II Wheels • Bose Sound System • Fully Electric Memory Seats • Previously Sold & Serviced by Paragon • 17,483 miles • 2003 (03)

£64,995

911 Carrera 4 S Targa (997.2)

Carrara White • Black Leather Seats PDK Gearbox • 19" Carrera Sport Wheels in Black • Sport Chrono Touchscreen Satellite Navigation Previously Sold & Serviced by Paragon • 43,129 miles • 2010 (10)

£56,995

911 Carrera 4 S (997.2)

Basalt Black • Black Leather Sports Seats • PDK Gearbox • 19" Carrera Classic Wheels • Sport Chrono Touchscreen Satellite Navigation Switchable Sports Exhaust 55,000 miles • 2010 (10)

£55,995

911 Turbo (996)

Arctic Silver • Black Leather Seats Manual Gearbox • 18" Turbo II Wheels • Cargraphic Sports Exhaust Fully Electric Seats • Previously Sold & Serviced by Paragon • 38,632 miles 2001 (Y)

£54,995

Macan GTS

Crayon • Black Half-Leather Sports Seats • 21" Sport Classic Design Wheels • Touchscreen Satellite Navigation • Sport Chrono • GTS Interior Pack • Switchable Sports Exhaust • 34,288 miles • 2020 (20)

£52,995

911 Carrera 2 S (997.2)

Midnight Blue • Sand Beige Leather Seats • PDK Gearbox • 19" Carrera S II Wheels • Touchscreen Satellite Navigation • Sport Chrono Previously Sold & Serviced by Paragon • 50,851 miles • 2009 (59)

£49,995

911 Carrera 4 Targa (997)

Arctic Silver • Black Leather Seats Manual Gearbox • 19" Sport Design Wheels • Satellite Navigation Heated Seats • Previously Sold & Serviced by Paragon • 68,099 miles 2006 (56)

£34,995

Boxster S (981)

Platinum Silver • Dark Grey Leather Sports Seats • PDK Gearbox • 20" Carrera Classic Wheels • Extended Leather • Touchscreen Satellite Navigation • Previously Serviced by Paragon • 42,527 miles • 2012 (62)

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PERFECT BALANCE

The 914 gave the 911 plenty to think about in the heat of competition. We drive an ex-works development 914/6 GT to see just how close the Targa-topped two-seater came to toppling the evergreen Neunelfer from its throne...

Words **Steve Bennett** Photography **Ade Brannan**

The green light at the end of the pitlane definitely means 'go'. A red flag definitely means 'stop'. Just three laps separate the two. As for orange, it's the vivid Signal Orange of this ex-works 914/6 GT, ensuring we have the full 'traffic light' effect. The problem? The brap, brap, brap of the car's 250bhp two-litre flat-six on open intakes and open megaphone pipes and, of course, the delicate balancing act between what happens at Goodwood Motor Circuit and the concerns of a twitchy local council, whose noise metres are ready to pounce and send marshals sprinting for the red flag of doom.

That, then, is that. The 914/6 GT is banished to the 'naughty garage' in the paddock. End of story? Thankfully, no. A couple of gentle sub-5,000rpm warm-up and photography laps and one rather more 'on it' lap is enough to glean a feel for this important piece of Porsche race car history. I confess, I did rather suspect this might be the outcome. Good job there's much more to this story than my own brief drive, though.

EVEN WITH JUST 220BHP, THE 914/6 COULD CLEARLY HUMBLE ITS FAR MORE ILLUSTRIOUS STABLEMATE

The 914/6 GT's star shone bright for barely more than a couple of years, but could have shone brighter still, had it not been for Porsche's own glass ceiling, which took the shape of the 911. In deciding to take the 914 racing and rallying, Porsche created its own enemy within — if afforded more development time, the Targa-topped two-seater could very easily have seen off the 911 in competition circles. Considering the 914 was supposed to be a budget-focused entry-level Porsche, this would never do. Then again, wasn't it supposed to be a Volkswagen-Porsche?

Do we want to go there? Well, yes, go there we must, because without this seemingly leftfield collaboration, you wouldn't be reading this article. Put simply, the 914 satisfied Volkswagen's desire for a range-topping car sports car, while the boxy two-seater would serve as an entry-level Porsche to replace the outgoing 912. In four-cylinder guise, the 914 would use VW's new 80bhp Bosch S-Jetronic-injected 1.7-litre flat-four, while as a Porsche, the model would make use of the 911's 110bhp two-litre flat-six on traditional carburettors.

Whether in range-topping VW form or as an entry-level Porsche, the 914 concept was exotic in its mid-engined layout. Indeed, in 1966, when designs and concepts were being mulled over, the number of mid-engined series production cars could be counted on one hand. Lotus Europa aside, none of them were remotely affordable. Lamborghini Miura, anyone?

It could be said the 914 wasn't remotely attractive. A bit harsh, perhaps, but there's no denying a sharper suit of panels could have had a dramatic bearing on the model's success. It's difficult to apportion total design credit to the 914, but it's fair to say it was a joint(ish) collaboration between Stuttgart-based industrial design house, Gugelot, and Porsche's own in-house styling department. It might not be much of a looker, but in terms of layout and packaging, the 914 is clever, being wide and passenger spacious, with a good amount of fore and aft storage space, incorporating room to stow the detachable Targa roof in the nose.

The 911's entire front suspension assembly, including torsion bars, crossmember, struts and all, was used on the 914, although the front hubs were changed on the four-cylinder model to allow the use of cheaper VW-sourced disc brakes. By contrast, the 914/6 used 911-style brakes in each corner. The rear suspension caused a few headaches — mid-mounting the engine meant transverse torsion bars could no longer be used. As a consequence, Porsche chose to use coilover rear damper units.

JOINT PARENTAGE

Both versions of the 914 went into production in 1969. Behind the scenes, the relationship between Porsche and VW was not so much strained as confused, not helped by the fact latter's chief cheerleader, Heinz Nordhoff, passed away prior to the start of production. His replacement, Kurt Lotz, didn't share Nordhoff's passion and was amazed to discover no formal detailed contract existed between VW and Porsche. Lotz insisted on sticking to the letter of the agreement in place, which he felt made it clear the 914 was first and foremost a VW project. Porsche, for its part, was very keen to keep control of the 914/6 as a second string to the 911.

For all this, the joint venture worked out fine, but for

Facing page An experimental 914 kept by Porsche for GT development work

one thing: cost. For what might seem inexplicable reasoning, VW demanded Karmann charge Porsche more for its supply of 914 bodyshells than it did for 911 bodies. This seemingly arse-about-face thinking turned out to be because VW regarded the 914 as a low-volume product, with high development and tooling costs, and the only way Wolfsburg could recoup them was to increase the cost of the basic components, namely the bodyshells supplied to Porsche. The 914 might have been an entry-level Porsche, but it ended up being expensive, certainly when compared to the cost of its rivals.

The 914 soldiered on into production. The four-cylinder model saw further development as VW expanded the Type 4 engine range from a 1.7 to 1.8 and finally the full two litres. The 914/6, however, underwent virtually zero development at the hands of Porsche, remaining resolutely a slightly underwhelming 110bhp second cousin to the 911. That said, there were bursts of enthusiasm from within and outside of the politics of the VW-Porsche mash-up. Moreover, within the walls of Porsche's then new Weissach product testing and motorsport facility, the company's engineers were keen to show off the benefits of the 914's mid-engined layout and its low centre of gravity. Consequently, preparations for competition 914/6s began in early autumn 1969. Twelve factory GTs were built by late 1970, these cars forming the basis of the 914's brief works competition life. Our noise-busting feature car is one of them.

THIS SIGNIFICANT CAR NOW RESIDES IN A COLLECTION OF OTHER SIGNIFICANT PORSCHES CURATED BY EXPORT 56 FOR A PRIVATE COLLECTOR

The twelve-car line-up comprised three prototypes and test cars, two Targa Florio cars, three Marathon de la Route (an eighty-four-hour endurance race at the Nürburgring, rather than a race over Europe's highest peaks) cars, three Monte Carlo Rally cars and one RAC rally car. Pretty impressive, given Porsche's top brass weren't entirely sold on the idea, but had been persuaded by the motorsport department. Note the 914/6 was intended very much as an endurance racer.

The GT package had substantial reinforcement to the rear of the chassis. The front suspension incorporated stronger front wishbones, plus anti-roll bars front and rear, unlike the standard road car, which had neither. On road- *and* track-

Above The 914 was and is a formidable track attacker, giving owners of same-age 911s plenty to think about at the circuit

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purposed GTs, the ride height was reduced by four inches.

For the body, Plexiglass replaced side and rear windows and plastic bumpers took the place of the steel production items. Under the visibly wider engine grille sat a two-litre, twin-plug flat-six designated 901/25 and based largely on the 210bhp motor from the 911 R. Downdraught Weber carburettors, cylinders with special bores, forged connecting rods and a steel crank with additional counterweighting rounded off the specification. With 10.3:1 compression ratio, the 914/6 GT engine developed 220bhp.

RESTORED IN SIGNAL ORANGE WITH DECALS IN HOMAGE TO WALDEGÅRD'S MONTE CARLO CAR, AS WELL AS THE MARATHON DE LA ROUTE TRIO

In addition to the works GTs, forty-seven customer cars were built, offered with the full M471 racing option. These were assembled by Bauer at Cannstatt on the east of Stuttgart and were finished off at Zuffenhausen. Of the original twelve works cars, two were scrapped, one of which was the Monte Carlo car driven by Björn Waldegård. Another was sold to Recaro and built into a Nürburgring rescue vehicle, while the third test car is our noisy feature star, now residing in the UK in the custody of 914 aficionado, Mick Pacey.

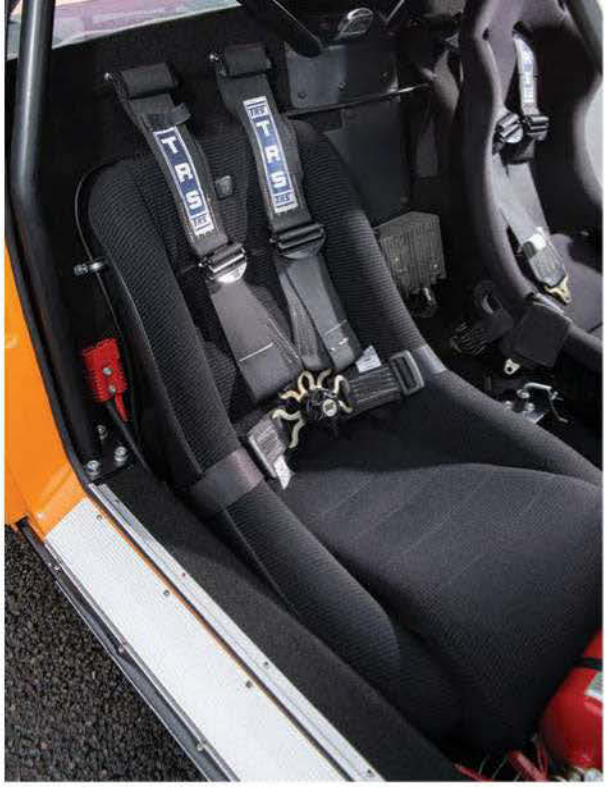
The 914 GT's competitive career — in Europe, at least — was short, but bright, making more than a fair impression. When pitched against the contemporary 911, the 914 was very much an equal, if not better. The first outing was in May 1970 at the ADAC 1,000km of Nürburgring, where four 914/6 GTs finished nineteenth, twentieth, twenty-first and twenty-third overall, plus second in the two-litre class, directly behind a 911. The 914/6 GT really made its presence known and its potential abundantly clear, however, at the 1970 24 Hours of Le Mans.

Of course, in Porsche legend, this particular outing at Circuit de la Sarthe is synonymous with Porsche's first overall victory at the French enduro and with the 917, which was driven by Richard Attwood and Hans Hermann first past the finish line. As if this wasn't enough, the 1970 event is also when Steve McQueen came to town in order to film his all too personal (and arguably all too self-indulgent), *Le Mans*.

McQueen's personally owned 908/2 was converted to a live-action camera car and was driven by Herbert Linge and Jonathan Williams, remarkably finishing in the top ten, albeit not classified.

Indeed, in a race of attrition, Porsche won every class in

Above Doubtless the 914 would have given Porsche a serious PR headache had the model been developed to its full potential as a racer



Above and below Not the most uncomfortable race car cabin, but certainly very loud, a result of having a screaming fiat-six directly behind occupant heads

which there was a finisher, all in the shadow of its overall win with the 917. And so often forgotten, but no less of an achievement, must surely be the sixth-placed Sonauto-entered 914/6 GT driven by the French duo of Claude Ballot-Lena and Guy Chasseuil. If features heavily in the film, too. A race of attrition it might have been, but the 914/6 was entered into the lowly two-litre GT Class and finished ahead of hordes of 911s. Besides, to finish first — or even sixth — you have to finish. What could have been? Well, it was more than a clue as to the 914's potential. Even with just 220bhp and privately entered, the 914/6 could clearly humble its far more illustrious stablemate.

More 911 vanquishing would follow. The three Marathon de la Route cars locked out the podium, giving a grid full of 911s a through savaging. By contrast, the 1971 Monte Carlo Rally wasn't quite a giant-killing performance. Set up for dry asphalt, the event was hit by heavy snow and the 914/6 had to give best to the nimbler rear-engined Alpine. Waldegård reckoned he could have gone quicker in a 911. This is likely true, but third on the 914/6's rally debut was pretty good going, especially when you consider the first 911 home was way back in fourteenth. Interestingly, Waldegård's Monte Carlo car came up for auction in March 2024 with a guide price of between £947,000 and £1,183,000. It didn't sell.

MID-ENGINED MARVEL

That was pretty much that for the 914/6 GT in competition, certainly as far as Porsche was concerned. You don't need to read between the lines. The GT was too fast. Developing it would have made it faster still. In modern terms, it's rather like Cayman embarrassing the 911. Up until very recently, Porsche kept the mid-engined coupe firmly in its place, thereby not upsetting the status quo. Similarly, *914/6 GT beats 911 S/T* was not what the company's marketing department wanted to shout about.

The 914's competition career continued with many privateer entrants, notably in the USA. Here, the model was much better understood, particularly on the West Coast, where the Targa roof panel could be dispensed with near permanently. The 914/6 had been seen as crucial to the American market — the 914/6 GT slotted neatly into International Motor Sports Association (IMSA) and Sports Car Club of America (SCCA) series, events and regions. In the myriad classes and categories, cars could be run stock or extensively modified. The 914/6 was perfect for either scenario. Cue, then, a racing career continuing to this day.

That's the history and the background taken care of, what about our feature car? Manufactured on 1st November 1970, chassis number 914 1430137 (as listed on factory homologation papers) is a GT retained by Porsche as an *Eigenbedarfsfahrzeug* (the literal translation is *self-use car*) for testing purposes. As such, it is known to be one of the earliest 914/6 GT works test cars, built using factory

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INSIDE STORIES 9m64RS, 959 S prototype, Mercedes-Benz 500E, Rometsch Beeskow, early 911 Targa, 911 S 2.0, 914 restomod

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SEPTEMBER 2025

COVER STORY Carrera Classic 911 SWB 2.0
INSIDE STORIES 964 Carrera 4, Eisenbrandt, 907, Carrera 3.2 Supersport, 964 Carrera 4, restored 912, 930 vs 991 Turbo, 934 evocation

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AUGUST 2025

COVER STORY Restored 1970 911 E 2.2
INSIDE STORIES Lakewell, 60 years of Targa, EMPI 914 build, RWB 964 Carrera 2, Vic Elford, 911 SC Targa, 917, Pro-9 restomod, 356 Pre-A

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911 TURBO ● LOHNER MIXTE ● 914 REBORN
CSF 911 RESTOMOD ● E&R CLASSICS ● 964 TURBO
993 CARRERA ● SCHWIMMWAGEN ● 356 B

JULY 2025

COVER STORY 911 SC RUF CR conversion
INSIDE STORIES Lohner Mixte, 914 reborn, CSF 911 restomod, E&R Classics, 993 Carrera, Schwimmwagen, 356 B, 911 Turbo, 964 Turbo

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911 S/T RELOADED
PRISTINE M491 TARGA FLORIO STAR TRIED AND TESTED AT GOODWOOD
CARRERA 3.2 SAFARI ● ERWIN KOMENDA
911 TURBO ● MITTELMOTOR ● 964 CARRERA 2
917/30 ● RETRO WORKS 993 GTR 3.8 ● 356 B

MAY-JUNE 2025

COVER STORY 911 S/T Targa Florio star
INSIDE STORIES Carrera 3.2 Safari, 356 B, 917/30, Mittlemotor profile, 964 Carrera 2, Retro Works 993 GTR 3.8, Erwin Komenda

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APRIL 2025

COVER STORY Restored 911 Turbo (930)
INSIDE STORIES Fifteen Eleven 914, 911 T, 964 Carrera 2 Targa, Carrera 2.7, Early 911S, Meyers Manx, intercoolers, 993 RS replica

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COVER STORY Celebrating 60 years of 912
INSIDE STORIES Renn Works Carrera 3.2, KAMM Manufaktur, Lakewell Targa backdate, Kroon Wire Harnesses, 356 Speedster, 912 EV

Classic PORSCHE
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SHORT-WHEELBASE 2.0L CUP STAR
356 SPEEDSTER ● ANGLO AMERICAN OIL COMPANY
CRAYFORD 914 ● HANS HERRMANN ● BUYING 911 SC
ROAD & RACE RESTORATIONS ● NORBERT SINGER

JANUARY-FEBRUARY 2025

COVER STORY Carrera Classic 911 race car
INSIDE STORIES Road & Race Restorations, 356 Speedster, Anglo American Oil Company, Norbert Singer, 356 Speedster, Crayford 914

Classic PORSCHE
AGENT ORANGE
AWARD-WINNING 911 SC FINISHED IN GT3 PAINTWORK BREAKS COVER
356 SUPER 90 OUTLAW ● 916 EVOCATION
BRANITZKI AND BOHN ● SIX YEARS AT GMÜND
993 CARRERA ● 718 W-RS ● 356 CARRERA 2

DECEMBER 2024

COVER STORY GT3-coloured 911 SC build
INSIDE STORIES 356 Super 90, 993 Carrera, 718 W-RS, 356 Carrera 2, Branitzki and Bohn, Six Years at Gmünd, 916 evocation, 904 at 60

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TWO-TONE 911
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40 YEARS OF CARRERA 3.2 ● 356 A T2 SPEEDSTER
STEVE MCQUEEN ● HEUER MONACO ● IROC REPLICA
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COVER STORY 3.5-litre DIY 911 restomod
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914/6 GT REPLICA ● CARRERA 2.7 MFI ● AUCTIONS

SEPTEMBER 2024

COVER STORY 356 B T5 Roadster tested
INSIDE STORIES Carrera 3.0 RSR evocation, Oilstainlab Half 11, 956 victory at Le Mans, 914/6 GT replica, Carrera 2.7 MFI, 935-001

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OR SCAN ME!

Above Porsches of this nature were regularly sold into private ownership back in the day, not something likely in the present

designation 914-55. The build sheet shows this car was initially assembled without an engine and described as *Versuch* (meaning *experimental*). A flat-six was duly fitted. Number 640001, in fact, making it the very first 914/6 engine.

This GT may not have been raced by the factory, but it has had a fascinating life. It remained a works car until 1972, accumulating twenty-eight thousand kilometres (not inconsiderable mileage) before it was sold to its first private owner, John Rulon-Miller, an American racer based in Germany. He was a renowned wheelman and handy when in charge of various 911s at Le Mans, Nürburgring and at many of Europe's other top-tier tracks. As a prolific Porsche privateer with factory connections, Rulon-Miller was able acquire the 914/6 GT, not for himself, but for his wife. The pair used the car regularly in competition, before relocating to the UK in 1975, bringing the 914 with them. At the turn of the decade, the engine was rebuilt with 2.2-litre 911 T cylinder heads and displacement was increased to 2,195cc.

A major body restoration was started in the mid-1980s, but effectively stalled for ten years. Then, in the small world occupied by the 914 and those who understood it, the car was acquired by its second private owner, Mike Smith, he of famed 356 and 914 specialist, PR Services. Funnily enough, this is the second 914 feature with a Mike Smith connection I've penned in the past seven days, having just documented the life and times of an uber-rare Crayford-converted right-hand drive variant. This was a car Smith also previously owned. Like I say, small world.

BOX CLEVER

Despite its partially dismantled state, Smith could see the car was a 914/6 GT with the correct factory body, including those flared wheel arches, although the car was missing most of its other model-defining parts. Crucially, the engine was still in place. He carried out a fair amount of body restoration, but as is often the way, paid work got in the way, which is why the job of finishing the restoration was entrusted to Martin Greaves at Classic Performance Engineering in 2012. Unsurprisingly, given Greaves' reputation in the industry, the result was and is stunning, supported by invoices totalling more than £300,000 and highlighting use of original 914/6 GT parts.

Restored in its original Signal Orange and with decals in homage to Waldegård's Monte Carlo car, as well as the Marathon de la Route trio, the newly restored 914/6 GT wasn't used by Smith quite as much as he felt it deserved. He was therefore receptive to an offer from the aforementioned Mr Pacey, proprietor of independent classic Porsche sales and restoration specialist, Export 56. This is a man who can't resist a 914, or any other leftfield air-cooled Porsche for that matter, particularly if resplendent in one of Porsche's 1970s 'Opal Fruit' colours. The fact he's a leading expert in the restoration of early Porsches speaks volumes for the work carried out by Martin Greaves, too, certainly insofar as it satisfied Pacey's eye for originality and detail.

The reason we are here at Goodwood? This significant car now resides in a collection of other significant Porsches curated by Export 56 for a private collector. Typically, the individual in question wishes to remain under the radar, but he has made this day possible by hiring the historic circuit for our benefit. I'm the jammy so and so tasked with getting behind the wheel of this and other rare beasts from the same fleet. I confess, I've never had much of a problem with the 914 and what some would describe as its 'challenging' looks. And I've certainly got no problem with it in GT specification and with a lick of Signal Orange covering its bodywork. Or those wide Fuchs filling out the blistered arches. Pre-Rennsport, this is the toughest road-racing Porsche of its era. Short squat, pugnaciously loud and ready to cause trouble, albeit not on the super-valuable original engine, but an in-period twin-spark two-litre 911 S boxer chucking out 250bhp and installed back in 2016.

Helmet on and the din is slightly more muffled. Inside, this car is as it would have left the factory, save for a more modern Recaro driver's seat. The cabin isn't too spartan — it features carpets and a passenger seat, plus a substantial footrest to facilitate secure pace note and map reading duties. Typically, the clutch is on the firm side, but the Type

901 gearbox is synchro'd, Porsche believing for endurance racing, the driver deserved a helping hand. That said, the dog-leg shift pattern always takes a little acclimatisation. This is to say, first is back and to the left, second is forward to the right, back for third, forward and right for fourth and back for fifth. Dodging behind the camera tracking car — with snapper Brannan hanging out the rear — gets the balloon-profile Michelin TB semi-slicks up to temperature. With Ade giving me a thumbs up to indicate 'job done', I'm free to let rip for one lap and 2.367 miles only.

250bhp makes short shrift of the GT's 840kg along the pit straight. Into the fast, third-gear double apex Madgwick, the camber of the track drops away, loading the offside tyres. There is noticeable roll and lurch as weight transfers to the outside, but once settled, the 914/6 feels planted and stable and gallops up through Fordwater, demolishing fourth gear, with fifth taken briefly before blipping and blapping down to third for the blind right-left St Mary's and a quick squirt to the tight right Lavant, taken in second. Again, there is roll, but as soon as the weight transfers, the 914 digs in and grips, sorting itself on the exit and streaking off up the Lavant straight. Hard on the brakes for Woodcote, turn in, a quick squirt to the chicane and… that'll be the red flag, then. Game over? Not quite.

I mentioned the S/T, star of the April 2025 issue of *Classic Porsche*. It was both fascinating and a privilege to drive this 911, but also provided a very useful comparison against the 914/6 GT, given the S/T was the contemporary customer-and-works competition 911 to the 914, right down to sharing very similar engines, certainly in terms of capacity and power. Identical gearboxes, too. This was never supposed to be a back-to-back comparison, but then again, why not? I jump from the 914/6 GT to the S/T (which, fortunately, is quieter) and head back onto the high-speed Goodwood track. The differences between the traditional rear-engined setup and the balance of the mid-engined layout are immediately obvious, from the moment you try to stick the 911's nose into the circuit's off-camber first corner. It doesn't really want to go there. The weight of the rear takes over and does its thing, necessitating a quick dab of opposite lock. A warning from the rear? You could say so.

And so it continues around the lap. It's all textbook, law of physics, 911 stuff. Stick the engine that far out the back and like a brick on the end of a broom stick, it will have a pendulous influence on the balance. Stick that same flat-six in the middle, and things suddenly become a lot more manageable and predictable. The 911 works very much in three dimensions to the 914's two dimensions, adding an extra variable for the skilled 911 racer to exploit that famed rear end grip, which is what Waldegård wanted on the snowy Monte Carlo and what the 914 couldn't deliver. In the dry? A different story.

I certainly don't count myself in the late Mr Waldegård's talent orbit, but I can tell my mid from my rear and I don't doubt had Porsche kept developing the 914 in competition, the 911 would have had a pretty tough time of things. This is a conclusion Porsche has largely come to itself in recent years — it moved the 911's centre of gravity ever more to the middle ground and even turned the engine around altogether for recent RSR endurance racers, effectively making them mid-engined. If that's not proof you can't defy the laws of physics, I don't know what is. Clearly, Porsche knew all along. **CP**

Above Wide arches give the boxy 914 serious presence, transforming the model into one of the best-looking classic racing Porsches

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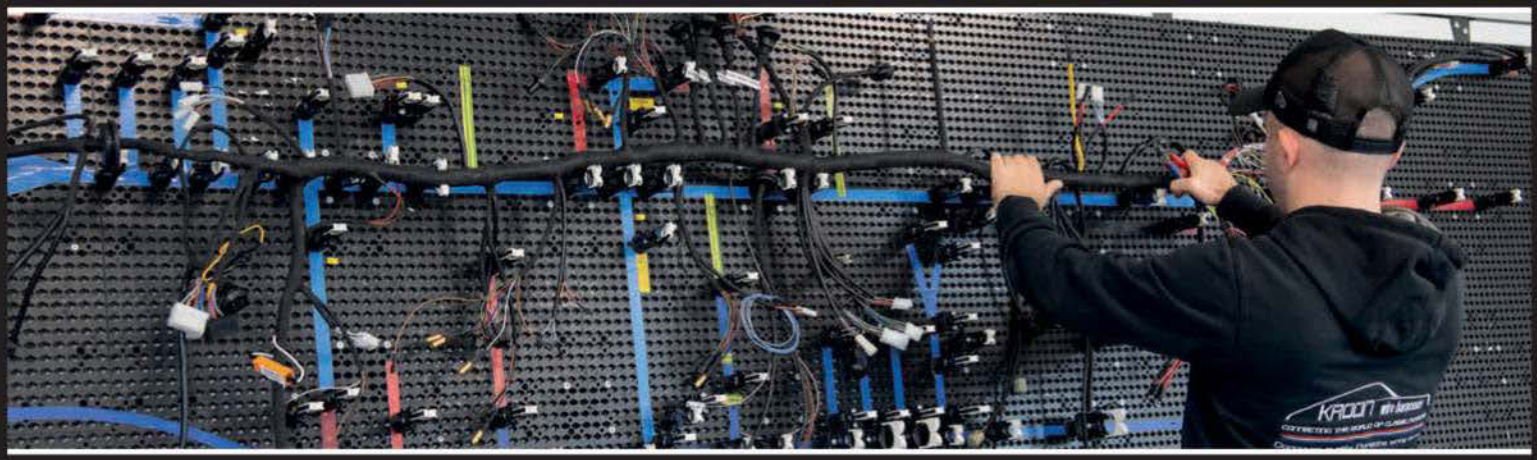

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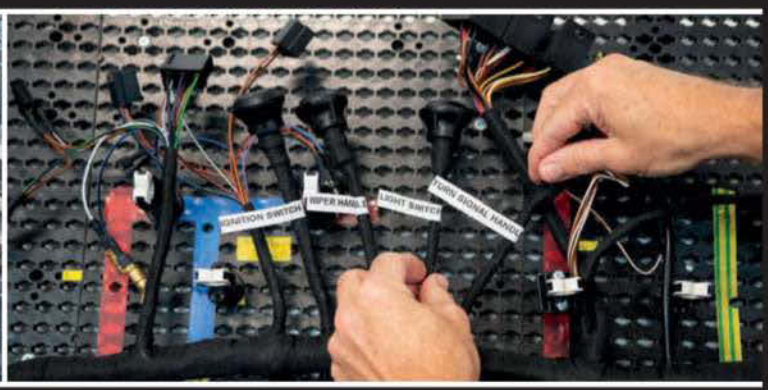

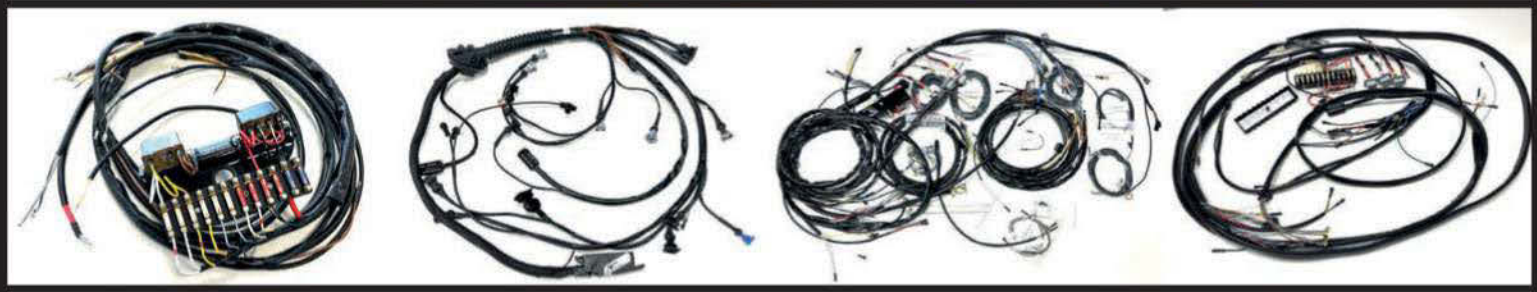

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RUF

RAISING THE RUF

From humble beginnings in post-war Germany to becoming one of the most revered names in high-performance engineering, RUF Automobile has carved a legacy resonating with Porschephiles and pop culture alike...

Words **Dan Sherwood** Photography **Ade Brannan**

In many respects, 1987 was the year analogue met adrenaline. Petrolheads lived in a world of poster cars, unfiltered driving experiences and mixtapes blasting Guns 'n' Roses, Depeche Mode and Public Enemy through tinny cassette decks. Acid-washed denim and bomber jackets were the uniform of choice at late-night service station meetups populated by radically styled four-wheelers. Group B's ghost howled through forest stages and Japan's new breed of sports car was threatening to challenge the supremacy of European marques. Turbochargers were whistling and pop-up headlights were blinking. It was the era of the Ferrari F40 and BMW E30 M3, but for many petrolheads, especially those with a hankering for models hailing from Zuffenhausen, there was only one sports car capturing the Zeitgeist. And it wasn't a Porsche.

A FEW YEARS LATER, RUF WAS AT IT AGAIN, THIS TIME SHOWCASING ITS ABILITIES WITH A NORMALLY ASPIRATED FLAT-SIX

Those with subscriptions to *Road & Track* magazine were reading about a high-performance 911 derivative codenamed Group C Turbo RUF (CTR), participant in a top speed event hosted at Volkswagen's sprawling Ehra-Lessien proving ground near Wolfsburg. A creation of specialist marque, RUF Automobile, the CTR obliterated the automotive old guard, taking the top spot with an incredible 211mph, some 10mph faster than its nearest rival. Dubbed 'Yellowbird' by the magazine's art editor (on account of the air-cooled stonker's striking Blossom Yellow paintwork contrasting against the day's dark, moody skies), this air-cooled monster immediately went down in history as one of the era's defining sports cars. It was, however, far from a one-off.

In 1984, RUF had taken top honours in *Road & Track*'s speed test shootout with the Gruppe B Turbo RUF (BTR), which reached 186mph in the hands of Formula One ace, Phil Hill, and Le Mans champion, Paul Frère. The BTR was RUF's first series production car and set the standard — as well as the philosophy — for the business from then on, but the story of its achievement gained little traction outside the US. Things were very different for the CTR, especially after it repeated its high-speed party trick at *Auto Motor und Sport* magazine's speed test at the Nardo Ring in Italy. Once again, the CTR clinched the top spot, this time raising the bar to 213mph, making it officially world's fastest production car. Automotive magazines across the globe immediately took note — the bright yellow RUF could be seen gracing all manner of mastheads. A short while later, while print publishing continued fawning over the CTR, the car's stint on celluloid truly captured the imaginations of sports car enthusiasts. Originally planned as little more than a company presentation video to showcase RUF's capabilities with 911-derived machinery, a mesmerising, twenty-minute-long, grainy VHS featured in-car footage of racer, Stefan Roser, piloting the Yellowbird around the Nürburgring at breakneck speed.

Titled *Faszination on the Nürburgring*, the short film became cult viewing, not only for the sheer speed and ability demonstrated by the CTR, but the nonchalant way it was being handled. Roser, dressed in little more than faded jeans and a t-shirt, white socks and leather loafers, was sawing at the wheel, lock-to-lock, dancing the turbocharged terror on a knife's edge along the thin ribbon of asphalt weaving its way through the Eifel mountain range. No safety helmet. No harnesses. Not even a pair of gloves to protect his delicate palms from the rasp of the bucking steering wheel in his hands.

RUF AND READY

While only twenty-nine factory CTRs were produced, the seed was sown in the consciousness of petrolheads the world over. Over the years, the model has appeared in video games, such as *Gran Turismo*, *Project Gotham Racing* and *Forza*. Indeed, for a generation of gamers, the CTR was a car they discovered before the classic 911 Turbo (930). While this devastatingly quick RUF may have been the catalyst for the aura now surrounding the Pfaffenhausen concern and its products, however, the firm's origins are far humbler.

RUF Automobile was founded in 1939 by Alois Ruf Sr as a general service garage catering for various vehicle types. It also produced a tour bus assembled from Mercedes underpinnings. By 1949, the business expanded to include a fuel filling station. Back then, the idea of building world-class sports cars wasn't on the horizon. It was a time of need, of keeping vehicles running through the hardship of war and, later,

Facing page Alois Jr took the helm of RUF at the age of twenty-four and has grown the brand to become the most famous Porsche-related sports car manufacturer

recovery of the German economy. That said, even during the company's early years, there was clear drive to do things differently. "My father was always focused on precision," recalls Alois Ruf Jr, RUF's Managing Director and the heart and soul behind the brand's rise to global fame. "He instilled in me the notion people had an obligation to follow through if they thought they could make something better. This is the philosophy we have held true to the present day."

The company's gradual evolution into a performance vehicle specialist wasn't premeditated, but organic — the business had become known for high-quality servicing, repairs and engine rebuilds. Alois Jr recalls a childhood steeped in the smell of oil and the rumble of engines echoing through the family garage. In November 1963, RUF took on its first Porsche project. It was the repair of a damaged 356. Little did the Ruf family know it, but this work would be instrumental in shaping the firm's future.

"The driver of a 356 notchback lost control while overtaking my father's tour bus," Alois Jr remembers. "The Porsche crashed, rolling twice and ending up in a ditch. My father took the driver to hospital and recovered the car back to our garage. A few days thereafter, he ended up buying the wreckage from the insurance company and we set about the process of repair."

The four-cylinder Porsche was enjoyed as the Ruf clan's family car for a year, before a chance encounter with a marque enthusiast convinced Alois Sr focusing on Zuffenhausen's output was a solid direction for the business. "My father and I were waiting at a red light in Munich, when a man knocked on the 356's window and asked to buy the car," Alois Jr gasps. "Within thirty minutes, we'd sold it for considerable profit. The buyer loaned us a 356 coupe to get home in, after which, he visited us to collect it, as well as the title deed to the notchback."

While a 356 showed the way, the 911 was RUF's game-changer. "I'd always been a fan of the 911," Alois Jr explains. "There was something poetic about the layout, engineering and balance of the car. It had soul, especially when released in 911 S trim. As for the Carrera RS 2.7, the ratio between power and weight was excellent, providing the perfect canvas for my father and I to base our ideas on." Sadly, Alois Sr would not get to see the fruits of this labour — he passed

Above and below
Cars in build at the Pfaffenhausen site, which has become something of a must-see destination for Porsche fans passing through nearby Stuttgart

Above and below
Alois Jr remains very much involved in the day-to-day running of RUF, but is ably assisted by his wife, Estonia, and daughter, Aloisa

away in 1974, leaving Alois Jr to take control of the family business. He was just twenty-four years old.

Determined to continue along the path RUF had started travelling, he expanded the firm's offering to include tuning. Within a year, he presented the first RUF-modified 911, marking the beginning of a series of groundbreaking technological developments. Choosing the 911 wasn't just the result of a love affair with the model, but an insightful business decision — the Ruf family saw in the 911 not only for what it was, but what it could become. This coincided with Porsche doing the exact opposite, scaling back 911 production in preparation for the manufacturer's front-engined, water-cooled transaxle family of products.

THE RUF MACHINE WAS BASED ON AN EXTENSIVELY RE-ENGINEERED CARRERA 3.2, THEREBY OFFERED AS A NARROW BODY, AS OPPOSED TO TURBO LOOK

"There was backlash from Porsche enthusiasts unhappy about the rumoured retirement of the 911. They simply didn't feel the 924 or 928 was a viable alternative. They wanted their Porsches to be 911-shaped, with an air-cooled engine at the rear. We saw this widespread dissatisfaction as an opportunity to build the kind of cars it looked unlikely to emerge from Stuttgart ever again."

The world began to take notice of RUF in the late 1970s and early 1980s, when turbocharged production cars gripped the motoring world, coinciding with Alois Jr presenting bespoke variants of the 911, pushing boundaries few dared approach. In fact, in early 1975, RUF began developing its first prototype, doing so alongside Porsche's launch of the 930. Starting with a standard Turbo, RUF added lightweight Carrera RS-style bumpers, a front oil cooler and a custom leather-trimmed interior. The focus was on refined, understated performance, rather than flashy tuning. Across the course of the following eighteen months, the company developed a 3.3-litre version of the Turbo, which developed more than 300bhp and made use of a five-speed gearbox, dramatically improving drivability and performance.

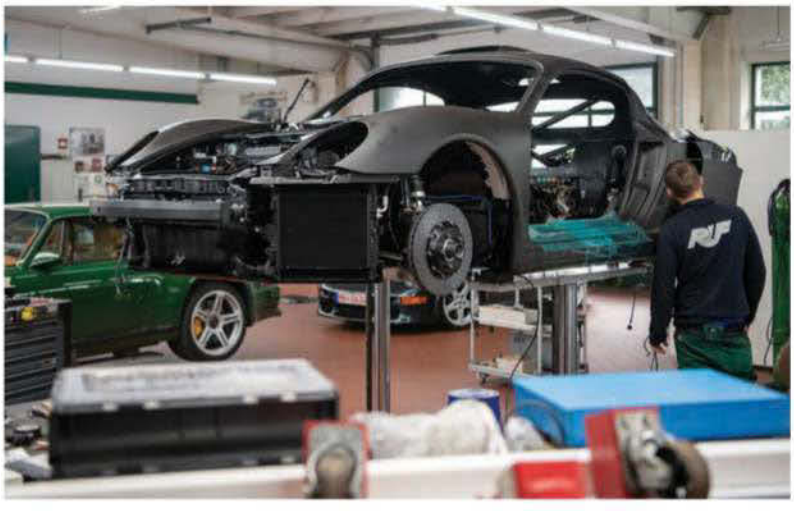
A few years later, RUF was at it again, this time showcasing its abilities with a normally aspirated flat-six. Based on the 911 SC, the resulting SCR increased engine displacement to 3.2 litres and raised compression ratio, resulting in output of 217bhp, some thirty-seven ponies more than was available from the standard SC. This was partly

down to RUF adopting an advanced Bosch K-Jetronic digital fuel injection system, allowing higher performance, whilst retaining excellent reliability and fuel economy. Combined with a 'whale tail' spoiler and optional wide wheel arches, the SCR bridged the gap between the SC and the 930, both in terms of performance and price. The outcome was huge commercial success for RUF, with customers thrilled at being able to enjoy Turbo-rivalling performance at a reduced cost. Even so, not everybody was thrilled with the brand's rapidly growing success.

"We were approached by Porsche and told we could no longer modify and tune 911s to the extent we were becoming known for," Alois Jr shrugs. "This pushed us into obtaining manufacturer status, as per BMW specialist, Alpina. We did so in 1981." From this point on, all RUF-built cars would carry a unique RUF vehicle identification number, even though until 2007, the base shells continued to be provided by Porsche. This means, unlike a 911 reimagined by Singer Vehicle Design, a RUF sports car is not to be regarded as a modified Porsche. It is, legally and mechanically, a standalone product. This distinction allows RUF complete control over engineering and design. From drivetrain layout to suspension geometry, nothing is left untouched. "Our cars start from the ground up. Even when based on Porsche architecture, everything is rethought. Engine internals, cooling, aerodynamics, weight distribution, all of it."

The first model built under RUF's manufacturer status was the aforementioned BTR, a car breaking new ground in automotive performance. This was followed by the CTR, which catapulted the firm into the stratosphere and cemented it as a serious player in the sports car world. "The project launched as the CTR originated back in 1979 as the RUF 945 R, with plans to use a 450bhp twin-turbocharged flat-six derived from the engine used in the 935 race car," Alois Jr reveals. "When Porsche's 959 project began, we decided to temporarily shelve our plans in order to avoid unnecessary competition."

In any event, the CTR arrived in 1987, the same year as customer deliveries of the 959. The RUF machine was based on an extensively re-engineered Carrera 3.2, thereby offered as a narrow body, as opposed to Turbo look. Aluminium panels, a de-seamed body shell, fibreglass bumpers and a built-in roll cage hinted at the extreme measures RUF had taken to reduce weight and increase torsional rigidity, but it was the CTR's engine (a twin-turbocharged 3.4-litre flat-



Above and below RUF used to make its cars on Porsche-supplied blank chassis, but now utilises bespoke carbon monocoques

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six producing 469bhp) truly setting the car apart from the competition. Mated to a bespoke five-speed gearbox (the 930 only made use of four ratios) and bringing kerb weight to just 1,150kg, the fiery flat-six enabled the CTR to sprint from rest to 60mph in just 3.65 seconds, beating Ferrari, Lamborghini, and yes, even Porsche, at their own game. "We weren't trying to make the fastest car in the world," Alois Jr laughs. "We were trying to make the *best* car in the world. When it turned out to also be the fastest, well, we didn't mind."

TOUGH ACT

Following the CTR's success was no easy task, but RUF doubled down. The CTR2, released in 1996, was based around the 993 platform and featured a 513bhp flat-six derived from the 962 Group C race car. The CTR2 also made use of an ingenious rear wing feeding air to the car's intercoolers. With top speed of 220mph, the model again earned RUF the coveted 'world's fastest' crown, which it held until arrival of the McLaren F1 in 1998.

2001 saw RUF step away from air-cooled cars and embrace a water-cooled future by basing the RTurbo on the 996-generation 911. With 590bhp and a 212mph on tap, this was a 996 even Porsche purists could love. A number of models based on 997, Boxster and Cayman platforms followed, all pushing the performance envelope in a way RUF had become renowned, but in April 2007, the firm took yet another step away from its origins. Enter the CTR3, a bold, mid-engined supercar marking both the opening of the company's new facility in Bahrain and the twentieth anniversary of the CTR. Co-developed with Canadian engineering specialist, Multimatic, the CTR3 was RUF's first ground-up model, built on its own chassis and clad in bespoke bodywork.

Unlike previous RUF cars, which were based on rear-engine layouts, the CTR3 adopted a mid-engine configuration. This shift drew comparisons with Porsche's GT1 Le Mans racer, which paired a 911-inspired silhouette with a mid-engine chassis. While many other models of Porsche-derived RUF (even Cayenne) came after the CTR3, the benefits associated with manufacturing a bespoke chassis was a huge draw, culminating in the firm switching to self-production in 2016, coinciding with launch of the normally aspirated SCR 4.2.

"When you break free from the donor car, you unlock everything. Chassis flex, weight distribution, even pedal feel. We control it all," Alois Jr reasons. "The use of carbon-fibre has now become central to RUF's identity. Used for the tub and the bodywork of our cars, the material allows RUF products to be safer, faster and more engaging than ever."

Above We couldn't help but notice a high number of green cars during our visit

Above Restoration of classic Porsches is a key service offered by RUF, though not hugely publicised

Today, RUF remains a tight-knit family business and is managed by both Alois Jr and his wife, Estonia. What began as a way to help her husband deal with the increasing administration demands of the business escalated to her playing a crucial role, leading the implementation of new products, devising brand strategy and overseeing marketing campaigns. "Estonia is as much a part of this business as me," Alois Jr tells us. "She was responsible for leading the development of the RUF 3400 S, derived from the 986 Boxster, even though I previously considered RUF to be all about 911s." Estonia's instincts were proved right by positive market response to the RUF roadster, which was followed by the 3600 S and 3800 S. Estonia also played a key role in securing licensing deals for RUF cars to appear in video games. "We may have only built twenty-nine real-world CTRs, but in the gaming world, there are more than eighty million. Estonia is owed credit for all of them."

THE RECENT ERUF GREENSTER AND THE CAYENNE-BASED STORMSTER SUV DEMONSTRATE WHAT A ZERO-EMISSION RUF MIGHT LOOK LIKE

Alois Jr and Estonia are supported by a small sales and administration team, as well as an army of dedicated employees turning wrenches, forming pieces of metal bodywork, sewing interiors and more. Unlike large manufacturers, all RUF employees have a hand in what the brand plans, designs and produces. This hands-on approach to product development isn't limited to RUF's team in Pfaffenhausen. Complementing the business and operating as an overseas outpost, RUF Automobile UK was established in 2016. Managed by the father and son duo of Richard and Mark Sekula, it operates as a sales conduit for both new and used RUF cars in Britain.

RUF's current offering for new builds is based around six key models: SCR, CTR3 Evo, R Spyder, CTR Anniversary, Tribute and the high-riding, four-wheel drive Rodeo. Whichever of these awesome machines floats your boat, you'll require deep pockets — this kind of craftsmanship doesn't come cheap. New commissions start around the million-pound mark, though this is a snip when you consider a 1989 CTR sold at Gooding & Company's 2025 Amelia Island sale for a cool £4.7m a couple of months ago. It's worth noting, you don't need to buy a car from RUF to benefit from its skills with steel, oil and leather — the company offers its services for both RUF and classic Porsche restoration projects, where hard-won skills and knowledge gained from more than sixty years of building, repairing and maintaining Porsches (and Porsche-derived sports cars) to impeccable levels is clear to see. Essentially, RUF technicians marry traditional and modern restoration technologies and techniques in perfect harmony.

Peek inside the immaculate workshops and you'll notice they're devoid of complex CNC machinery or multi-limbed robots. Instead, the firm makes use of high-mileage lathes, all

manner of metal shearers, panel-beating mallets and trolleys carrying an eclectic array of hand tools, worn shiny and smooth with use. These are wielded by employees of all ages, from time-served technicians carrying out labour-intensive metal crafting on 356 restorations, to young guys assembling brand-new CTR Anniversary engines. "Where possible, we remain true to traditional methods of restoration, which is essential to understanding these cars. This knowledge is handed down to the next generation of RUF employee," Alois Jr emphasises. "If a part is no longer available, we need to be able to make it. Alternatively, if we recognise a component can be improved, it is imperative we do so. We produce our own wiring looms, for example, because we want to ensure electronics work the way we want them to."

Restoration has been the central pillar of RUF's business for many years, with Alois Jr personally responsible for the rejuvenation of many cars, including seven 901s, one of which he still owns. "My father gave me a crash-damaged 911 without an engine when I was nineteen years old," he remembers. "I fixed the car and modified it with a four-cylinder engine from a 912, added 911 S trim and fitted Fuchs wheels. I drove this Porsche everywhere. Then, in 2019, when I began restoring the car, I discovered its true identity."

Nicknamed 'Quickblau', this is one of seven Type 901 prototypes. "Today, there are only two surviving cars of this nature," Alois Jr stresses. "My car is prototype number six. Number seven resides in Pennsylvania." Quite the revelation.

Restoration by RUF takes around two years and costs between €250,000 and €300,000. You'll need to wait a similar time for an available slot in the workshop. "We are now restoring cars we sold new many years ago," Alois Jr grins. "Manufacturing spearheaded by the latest RUF models is fast becoming the main focus of the business, though, with RUF's restoration work happily running alongside new product development."

With a staff headcount of 103, including fifteen apprentices learning the RUF ropes, the firm produces close to thirty of the world's most exciting, exclusive and ferociously quick cars each year, but Alois Jr is certainly not resting on his laurels. In the age of electric and hybrid motoring, RUF is keeping an open mind. "Electrification is an inevitable part of our future, but we will only adopt it in typically RUF fashion, which is to say with performance and driver involvement paramount." The recent eRUF Greenster and the Cayenne-based Stormster SUV demonstrate what a zero-emission RUF might look like, but for now, the heart of Pfaffenhausen beats to the sound of internal combustion.

"Our cars are built with emotion," Alois Jr continues. "The numbers are important, but feel behind the wheel, this is what matters most. You have to *feel* the car in your chest, your fingertips, your spine. This is something RUF will never lose sight of." For now, at least, RUF is a manufacturer remaining committed to petrol power. "There is still room for analogue driving experiences in the modern motoring world," Alois Jr muses. "For us, there is no better delivery vessel than via a high-performance internal combustion engine. It's what our customers want and, importantly, what they expect from us." RUF may trace its roots to Porsche products, but this small manufacturer's soul is wholly its own. Built on passion, precision and principle, a RUF isn't just fast, it's something rare: a machine with meaning. And with every car rolling out of Pfaffenhausen, the company reasserts its place in the pantheon of automotive icons, adding more weight to its already substantial legacy. This isn't the finish line, though. It's a launchpad, one Alois Jr and Estonia's twenty-four-year-old daughter, Aloisa, is being groomed to spring from long after her father has hung up his driving gloves and stepped down from running the business. She's a product of her parents, driven by a nose for business and a burning passion for the cars carrying her family name. Clearly, for all the accolades, the Nürburgring heroics and worldwide fame, RUF's story is still being written, one perfectly engineered car at a time. **CP**

Above The mark of a company recognised for beating Porsche at its own game

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RING THE CHANGES

This beautiful black 964 Carrera 2 Targa backdate is the focus of continually altering specification, but sat still long enough for its first public appearance in many years during the summer show season...

Words **Dan Furr** Photography **Gunhill Studios**

Nine times out of ten, when an owner embarks on an ambitious restomod project — or, to a degree, a standard restoration — they want to introduce modern levels of comfort, performance and reliability to proceedings, introducing parts to make living with a classic car all the more enjoyable in today's traffic, as well as eliminating gripes they may have with factory parts based on designs many decades old. Suspension is a prime example of what we're taking about, where a restomodder might decide to ditch passive shocks with electronically controlled adjustable dampers.

Converting automatic transmission (okay, in the case of Tiptronic, semi-automatic) to manual is another popular pursuit, though the opposite is virtually unheard of. "We must be one of the only restorers to convert a manual 964 to Tiptronic," laughs Will Chappell, owner of Cotswold-based independent Porsche revivalist, Stuttgart Classica. "The car's owner is keen for his wife to share in his passion for air-cooled Porsches and decided building her a classic 911 pairing F-series looks with an automatic cog swapper would do the trick."

A 964 Carrera 2 Targa served as the starting point, but somewhat unusually, despite having every intention of presenting his betrothed with a 911 comprising just two pedals, the car's owner handed Will a 964 loaded with manual transmission. "It's not a case of simply taking one gearbox out and chucking another in," he stresses. "Tiptronic demands a stack of wiring, different driveshafts and a dedicated ECU. It's a convoluted conversion, but this is what the car's owner asked of us. Unlike most other Porsche restoration shops, where specification is dictated by the business and the client's input rarely extends beyond paint colour and the look of the interior, Stuttgart Classica is dedicated to creating truly bespoke 911s satisfying every desire, every whim, every goal outlined by our customers, no matter how much work is involved. Of course, we provide advice every step of the way, but we don't like to say no to any of the wants or needs we're asked to take care of, no matter how tricky the work might be."

Trickier still when work already completed needs to be undone in order to accommodate evolving specification after the parameters of the build have already been determined. "This particular client is hugely enthusiastic and spends a great deal of time researching 911 restorations the world over. Consequently, he regularly suggests alterations, irrespective of whether we've already completed work to previously agreed specification. Our job is to ensure what's being pitched is as fit for purpose as the original solution, but ultimately, we have to satisfy demand."

CHOPPING AND CHANGING, BOTH LITERALLY AND FIGURATIVELY, WOULD BECOME A HALLMARK OF THE PROJECT

Coupled with Stuttgart Classica's huge catalogue of custom parts for air-cooled 911s, this attitude is one of the reasons the brand has remained a firm fixture of the Porsche restoration and restomodding scene since being established as a going concern in 2018. Upgrades are an ever-present possibility, whether you've dispatched a flat-six for rebuild or commissioned Will to create the Porsche of your dreams. Alongside stocking items from household names, including Recaro and Dansk, the company offers a wide range of its own products. Transformational metalwork is a strong seller — bonnet extension kits sell well, and customers can't get enough of the company's steel sunroof delete panel. Crafted by an English wheel to feature the same curvature as the departing part, the kit fits every 911 from 1965 to 1997.

BALANCING ACT

"Air-cooled 911s are fantastic things, but they aren't the easiest cars to drive daily," Will reasons, reflecting his client's concerns. "Many of the projects and upgrade programmes we undertake are about making older cars more usable. Work with us and you'll be getting the best of everything." To this end, every part his team develops is tested and finely finished before being released for sale. Unsurprisingly, there are many bespoke parts fitted to this semi-open-top 964.

This isn't the first time Will has satisfied demand from this particular customer. "The Targa has been on the backburner for a while," he explains. "The car's owner is in possession of a variety of 911s, including a 964 Turbo. All but one are painted black. He also owns an old Alfa Romeo and a classic Mercedes-Benz G-Wagen, both of which he asked us to work on. We don't usually

Facing page Once a manual 964 Carrera 2 Targa, this immaculate 911 is now a Tiptronic-loaded F-series lookalike packing throttle bodies and a MoTeC ECU

get involved with cars outside the Porsche stable, but considering the volume of work we've had from this client, not to mention the fact we've become very good friends since our professional relationship started, I've been happy to take on whatever he wants to throw at us. I was acutely aware, however, progress on the Targa was being delayed by these other jobs. For this reason, a long time into the project, I set a deadline of summer 2025 to finish the build. I saw a solid cut-off point as a means of renewing focus and getting the project back on track."

The car was presented to Stuttgart Classica back in 2019, not long after the business became Will's full-time occupation after starting as a way for him to restore his own 911 using bespoke parts without attracting significant cost, which is to say bulk ordering of custom components and selling the surplus. "All the cars in this customer's collection are manual. His wife likes automatic transmission, hence the decision to convert the Targa to Tiptronic. This project was never about power or speed. It was about style, subtlety, comfort, quality and attention to detail."

The decision to incorporate F-series styling came early on. It's a process second-nature to Stuttgart Classica, with the company having completed many such conversions over the years, though this isn't to say it's easy. The position of the fuel tank and the height of the floor, for example, vary between different generations of 911, meaning the 'long bonnet' front end conversion isn't exactly straightforward. Even so, Will and his team successfully backdated the Targa's front clip, bonnet and sills, eradicating any corrosion found along the way. The back of the car received the same treatment.

On this front (or should that read *rear*?), the commissioning client asked for the 964's wheel arches to be replaced by the flatter, narrower arches of the F-series 911. Will duly obliged, only to be asked to reinstate the 964 bulges thereafter. "We cut out the original arches, but then the client had a change of heart and asked us to put them back in. We did so with custom leadwork." Chopping and changing, both literally and figuratively, would become a hallmark of the project.

"One of the owner's favourite pastimes is to crack open a bottle of red and surf eBay looking for rare Porsche

Above Classic styling with present-day levels of refinement

Above and below Interior was trimmed in-house at Stuttgart Classica and makes use of a Special Wishes luggage box

parts," Will continues. "The resulting personal collection of components in his possession is seriously impressive. His seat collection alone is worthy of being in a museum. As a result of this regular bounty hunting, he buys parts, then brings them to me with a request them to be included in the build, even if they're replacing new parts already sourced and installed." The unpredictability of final specification was exciting, and though the customer is always right, installation of newly introduced components often had the effect of major revisions to elements of the car presumed finished, continually bringing the project deadline into question.

BLACK AND CARAMEL-COLOURED LEATHER WAS SELECTED FROM THE HIDE CREST RANGE AND IS TWINNED WITH CHARCOAL CARPETS

Mirroring a point made at the top of this article, the suspension is a prime example. A box of brand-new Bilstein shock absorbers and accompanying Eibach springs made their way onto the car, only for TracTive semi-active dampers to replace them late in the day. Now, you might be wondering what the problem is. One in, one out. Simple, right? Well, not quite. You see, TracTive's ACE system offers multiple levels of adjustability, with five presets selectable on the fly from within the host 911's cabin. The user interface is either a simple rotary control — the most common option on early 911s and usually hidden in the glovebox — or a fancy full-colour touchscreen, of which many readers will have seen pictured in these pages previously. There's obviously a batch of wiring to install, but head-scratching came with mounting of the touchscreen, which was introduced after the appointment and trimming of a genuine 993 Special Wishes centre console.

"The 993 part wasn't an easy fit," Will recalls. "Moreover, we'd treated it to custom trimming, along with the rest of the interior. Due to subsequent installation of the Tractive kit, this super-rare centre console had to come out and be altered to accommodate the touchscreen. This addition necessitated repositioning of switchgear."

While we're in the cabin, let's take a moment to soak in the details. All trim work was carried out in-house at Stuttgart Classica and is centred around Recaro Ergomed ES seats, which are multi-way electronically adjustable and feature both heating and cooling functionality. They look just as

comfortable as they feel and are in keeping with the aesthetic of the classic 911 interior. More so than, say, Recaro Sportster CS seats, which are arguably too big and bulky to look anything other than out of place.

SWEET TREAT

Black and caramel-coloured leather was selected from the Hide Crest range and is twinned with charcoal square-weave carpets and floor mats. The door cards continue the twin-tone theme and include useful cup holders, while a 996 Tiptronic gear selector re-engineered to work with the 964's earlier semi-automatic gearbox sprouts ahead of the handbrake. Instrument gauges follow Porsche's early design (utilising green digits and lettering) and reside in a Stuttgart Classica backdate dashboard housing a Classic Retrofit electric air-conditioning control panel and 993 knee pad. An early-style four-spoke steering wheel is adapted to suit the 964 steering column, which accommodates billet aluminium indicator and wiper stalks colour-coded black. A genuine Special Wishes rear storage box replaces the back seats.

Incidentally, the aforementioned rear quarters — you know, the ones replacing 964 bulges, only to be reconfigured to look exactly like, er, 964 bulges — are genuine Porsche parts for the F-series 911. They sit over sixteen-inch Fuchs wheels wrapped in Michelin Pilot Sport 4S tyres with 205/55-profile rubber. A tight fit, considering the wheels are six and a half inches wide. All brightwork is chrome-plated, with the exception of the Targa rollover hoop, which is finished in body colour. The same is true of the aluminium front fog light covers, housed in a full steel bumper assembly. At the other end of the car, three-piece construction of the steel rear bumper allows adjustment to the side and makes use of Stuttgart Classica's bespoke backdate bumper mounts.

As you can probably guess, a high number of products from the Stuttgart Classica catalogue have been used on this build, from the ninety-litre centre-fill fuel cell (demanding bonnet cut-out for the neck and billet filler cap), to the aluminium strut brace, hidden beneath a custom frunk liner. Additionally, there's a rare F-series Targa hard-top modified by Will's team to sit pretty on the 964, work requiring custom catches and a reworked inner frame.

Above and below Flat-six is oversized to 3.8 litres, shouts through a custom valved exhaust and is topped by a trick plenum inspired by that of the 997 GT3

Above Rollover hoop is colour-coded to the car's black body

993 parts abound. There's the rare (and now heavily modified) Special Wishes centre console, but also BBI Autosport front uprights — a popular upgrade improving the 964's handling — and a wiper assembly from the last-generation of air-cooled 911. On the topic of handing, all supporting suspension components were restored or renewed, with new genuine Porsche rubbers used throughout. All aluminium parts were vapour-blasted and finished in a clear Cerakote corrosion-resistant coating. H&R anti-roll bars (twenty-four millimetres at the front, twenty-six at the rear) and adjustable rear drop links joined the party, with the finished arrangement being handed to the team at chassis tuning specialist, Center Gravity, for optimisation.

THE REVITALISED BOXER IS A 3.8-LITRE UNIT LOADED WITH THROTTLE BODIES AND MANAGED BY A MOTEC ECU ALLOWING DRIVE-BY-WIRE

What of the engine? Prior to it finding its way to Stuttgart Classica, the 3.6-litre lump was handed to a third-party for rebuild. "The M64 flat-six enthusiastically develops oil leaks," Will jokes, "but even after this unit was rebuilt, there was a lot of fluid being dumped during operation. I was alarmed at not just the amount of oil being lost, but also the volume of power steering fluid being ejected. Investigation revealed a missing power steering pump seal, which raised uncomfortable questions insofar as the guy commissioned to do the work must have started with a complete gasket kit and found he had a seal left over. Did he look at it and discard the part, not knowing or caring what it was for? Did he know and couldn't be bothered to fit it after supposedly finishing the job? Either way, the results were majorly unsatisfactory, made worse by the discovery of warped rocker covers and broken studs."

With the rest of the Targa ready for its reveal on Stuttgart Classica's stand at Oxfordshire's Megaphonics show, there was no guarantee the car would make it to the event under

its own steam, hence the decision to carry out a full rebuild of the supposedly rebuilt engine. Various enhancements were considering along the way, but let's skip to the specification Will and his client agreed on (presently, at least).

The revitalised boxer is now a 3.8-litre unit loaded with AT Power throttle bodies and managed by a MoTeC ECU allowing drive-by-wire throttle. A Stuttgart Classica intake plenum (inspired by that of the 997 GT3) and air filter setup is joined by carbon-fibre heater tubes, all new tinware and a serpentine belt upgrade. A fan painted Polar Silver adds to the eye candy, which is notable for lacking exposed carbon weave. "The car's owner doesn't like the look of carbon-fibre and therefore asked us to paint all carbon components body colour, including the custom sill covers and the engine bay pipework." Final fettling is planned in advance of an ECU mapping session, where the current conservative output of circa 315bhp is expected to rise by approximately sixty ponies. Torque is currently at near 300lb-ft. Noise is amplified by a bespoke valved exhaust.

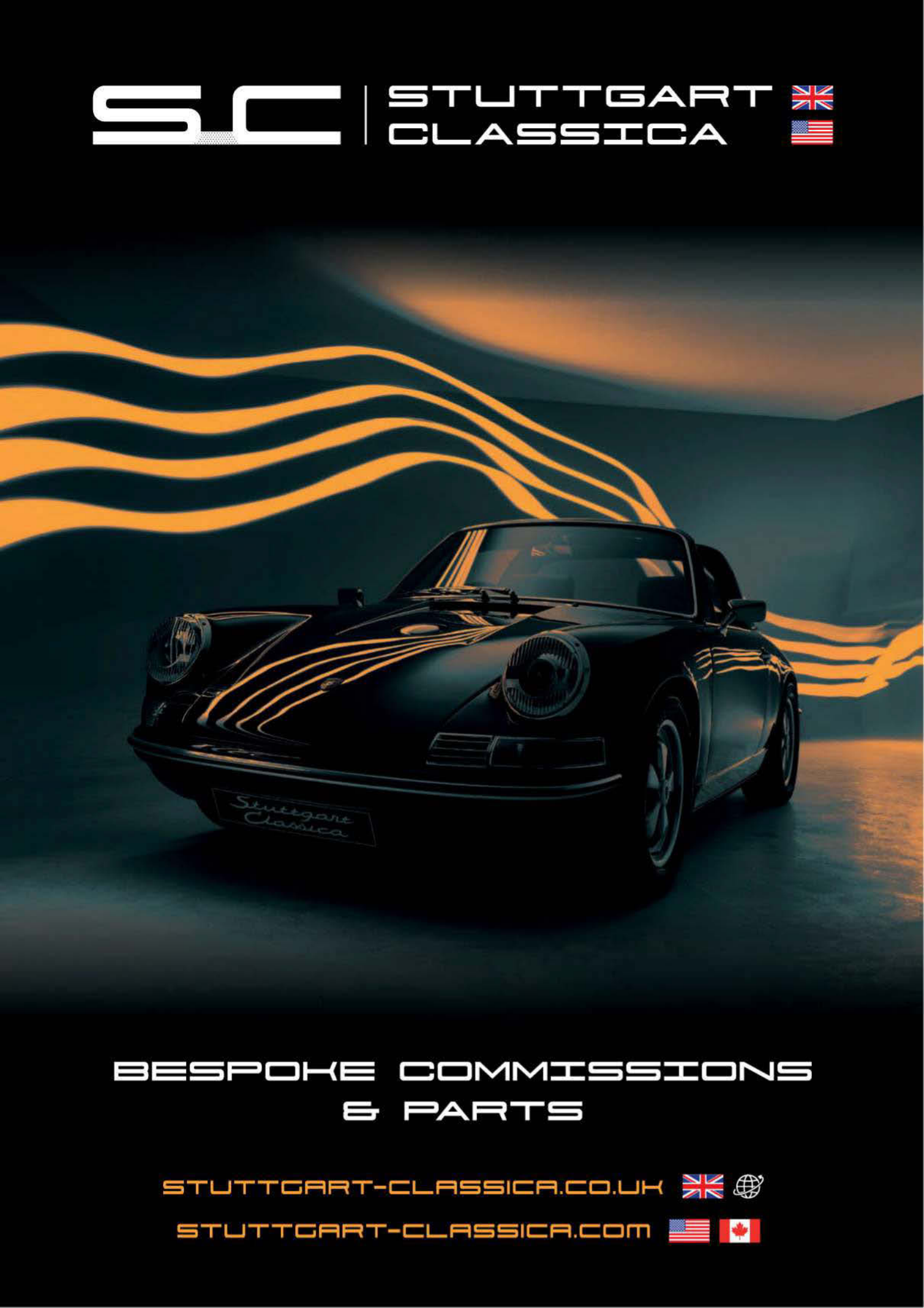
"The more modern this car becomes, the more likely the owner's wife will want to use it," Will says. "Well, that's the hope, anyway. Being a Targa, this is definitely a summer Porsche, but the good thing about 911s is how they can be used in all driving conditions, year-round. I can see this personalised 964 being great for long road trips around Europe, such is the level of comfort, refinement, mechanical reliability and cruising power on tap. The Tiptronic transmission makes it an easy drive for long distances, as well as in towns and cities. I don't suppose we'll be asked to convert another manual 911 any time soon, but I can certainly see the appeal, although it obviously makes sense to start a project like this with a Tiptronic-kitted 911."

Following the photo shoot yielding the pictures on these pages, Will surprised the car's owner by presenting him with a hardback book of the resulting images, as well as a build sheet documenting final specification, emphasised by a selection of photos taken during the years-long restoration process. "He was a tad bemused," Will laughs. "I should have anticipated his response, but he told me he'd acquired a number of new parts and had been thinking about altering the car to allow for their installation. I guess the next evolution of this Targa is about to kick off?!" Of all the never-ending stories, this terrific Targa is one of the best. **CP**

Above 'Strawberry basket' styling looks superb on this semi-open-top backdate

STUTTGART CLASSICA LTD
Make/Model:- Porsche 964 Targa
Chassis number:- WP0ZZZ96ZLS410541
Date of Completion:- Aug 2025
Build Ref :- "Phil's Targa Backdate"
Build No: 008

STUTTGART CLASSICA



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MCT-51

IVORY COAST

We're signing off at Carrera Classic with this stunning two-litre 1965 911. Like all the cars we've sampled from this talented Finnish restoration specialist, it could be yours. Time for one last drive? Go on, then…

Words **Steve Bennett** Photography **Chris Wallbank**

One more for the road? Why not? We're not talking alcoholic beverages here, although you can get some pretty fierce spirits in Finland. No, it's time to avail ourselves of one last drive through the wonderful scenery, pine forests and lakes in this country we have come to know so much better during our deep dive into Finnish Porsche culture, an adventure for which we have to thank Jussi and Raili Itävuori, proprietors of Carrera Classic, a Porsche restoration business based in Vaasa, an hour's flight south of Helsinki on Finland's west coast, a short boat ride from Sweden.

We've learned a lot, not only about the way this country views air-cooled Porsches, but also culturally. You see, here in Vaasa, both Finnish and Swedish are spoken, each counting as the region's official language. History recounts Finland being caught in a war for territory between Sweden and Russia, although today, only the latter is viewed as a threat, hence the fortifying of Finland's eastern borders. Oh, and local people preparing boats on the water's edge in case they need to make a quick getaway. Strange and somewhat troubling times.

Let's leave the politics to news agencies. Porsche-wise, we've learned much from an immersive deep dive into early short-wheelbase 911s. Jussi's interest lies largely with 911s built between 1965 and 1967. He really knows his stuff, as you would if you'd carried out as many detailed restorations as he and the Carrera Classics team have over the years. There's also the not insignificant matter of him competing with a 1965 911 in the single-make Peter Auto 2.0L Cup, a life Jussi waited until his mid-sixties to come to. Indeed, restoration and racing are both the second phase of his working life, having done the hard miles in international business, travelling the world for the European Aeronautic Space and Defence Company (EADS, parent of Airbus, the world's largest manufacturer of airliners). Raili's successful career in international banking, meanwhile, saw the Itävuori duo go from strength to strength, resulting in them living in various European cities as employment demanded.

Home is where the heart lies. Vaasa for Jussi and northern Finland for Raili. The desire to start Carrera Classic and test the couple's entrepreneurial skills coincided with mutual opportunities for early retirement. Some might question these skills, because at first glance, the Carrera Classic business model seems to be sales averse. "Raili is a collector and investor, mainly in the art world," Jussi explains. "I love classic Porsches. We were both enamoured with the idea of restoring neglected cars, which obviously present an investment opportunity. Our two interests met and we decided to start a 'commercial collection', meaning we would manage no-expense spared restorations of historic Porsches for our own enjoyment, but on the understanding all finished cars are available for purchase by third-parties." Consequently, Jussi and Raili have amassed a collection of stunning, historic 911s, all of which have been bought first and foremost for themselves, as was the case with this 1965 911 finished in Light Ivory. Like Carrera Classic's other restorations, it's for sale, but Jussi isn't exactly shouting about the fact. "Oh, yes, all our cars are for sale," he confirms. "We know they have to go, but it's hard not to become attached." We can wholeheartedly understand this train of thought. For any prospective buyer, though, there is the bonus this wonderful 911 — and others in the Carrera Classic collection — has been thoroughly de-snagged. "We like to put at least a thousand kilometres on each car," Jussi remarks. "They benefit from being driven. Porsches sitting idle will soon go out of tune, just like we humans." True enough.

THE CAR WAS A LONG WAY GONE, ONLY ITS PROSPECTIVE VALUE MAKING IT A WORTHWHILE RESTORATION PROJECT

CHANGE OF DIRECTION

And so to this final drive, a kind of deeper dive into the Carrera Classic collection on account of the car being bought way back in 2012 and then mothballed, awaiting both the company to fully establish itself and for its restoration slot. In those early days, the business outsourced a lot of work, effectively project-managing a selection of carefully curated subcontractors, Finland's specialist Porsche sector being somewhat sparse to non-existent. Now, however, Carrera Classic does pretty much everything in-house, which is crucial to being in command of project timescales and quality control,

Facing page A sensational example of the short-wheelbase 911 and, better still, you could be its owner

although, it has to be said, without customers for these personal restorations, the team can afford to take its time. This isn't to say Carrera Classic isn't a commercial outfit. There is servicing work, other restoration work, ongoing 964-based backdates and more. It's just that these personal Porsche projects are, well, exactly that.

One thing fascinating us with all Carrera Classic builds we've encountered is each vehicle's backstory. Today's star car is no exception. We feel like *Time Team* digging into the history of these air-cooled Porsches, which by one miracle or another, have survived long enough to land in the safety of Itävuori rule. Like so many 911s of this vintage, the car was a long way gone, only its prospective value making it a worthwhile restoration project. One has to consider the purchase price back in 2012, which pretty much pre-dates the explosion in values of classic 911s.

What does history reveal for this now immaculately restored survivor? An early 911 it may be, but in terms of production, its chassis number (2914) establishes it as being mature. A 1965 car? Built in 1965, yes, but for the 1966 model year, such is the way Porsche production works. The Kardex reveals the build date as being just after the factory's summer shutdown (August 1965), which makes this one of the first hundred two-litre 911s for 1966. What does this mean, exactly? Well, it's all in the detail, which Jussi is the master of, being a keen student of all things early 911. 1966 model year cars featured the later Type 901/1 five-speed gearbox, which shared its ratios with the 912 and are reckoned to be just slightly shorter over those of the previous Type 901/0 transmission. Of course, there was also a four-speed option, but Jussi confesses he has yet to encounter one. The car might have been in poor shape when Jussi discovered it, but it was complete and original in every way, which is half the battle won in restoration. We'll obviously come to Jussi's acquisition and subsequent Carrera Classic work, but first, more of this 911's factory specification and history.

Imagine you're an American banker working in Geneva. A bit of European car culture is bound to rub off on you, or you're already someone knowing something special

Above The off-white of Light Ivory is a fantastic colour for an early 911 or 912 and is typical of tastes of the 1960s

Above Pepita seat centres help to tie the exterior with the black of the cabin

when you see it. Clearly, a 911 isn't a Corvette. Anyway, this describes the first owner, a Switzerland-based US banker who took delivery via Swiss importer, AMAG, in late 1965. Put on those rose-tinted spectacles and our man is cruising the cosmopolitan streets of Geneva with maybe the odd drive up into the Alps. All very evocative. Eventually, our money man returned to the US, taking the 911 with him. Jussi's detective work suggests the original buyer kept the car until 1975, when it was sold to its second owner.

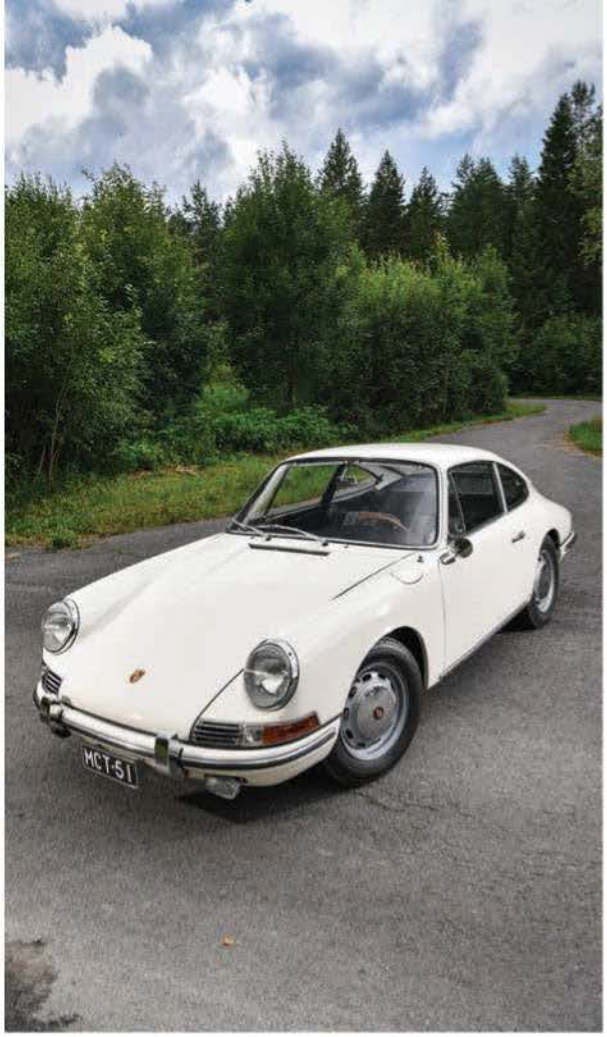
THE INTERIOR HAS BEEN RESTORED TO STANDARD SPECIFICATION, WHICH IS TO SAY BLACK LEATHERETTE WITH BLACK AND WHITE PEPITA INLAYS

As Jussi points out, this car includes all the features typical of a 1965/1966 0-Programme 911. The wooden dashboard, tactile thin-rimmed wooden steering wheel, the five green-numbered instruments, the first-generation 911 badge on the dashboard and engine lid. Then there are the five 7/65 date-stamped 4.5x15-inch steel wheels, non-adjustable front shock absorber mountings, the VIN plate next to the chassis number, four-screw grille horns and small driver-side Durant mirror. Options? A Blaupunkt radio and Hella 128 fog lamps. As we've said, all this equipment remains with the car.

Unusual facets and features catching Jussi's keen eye? "This 911 includes retro-fitted eleven-kilogram steel weights in the front bumper, which Porsche fitted to try and tame handling by balancing weight of the 911, front to rear." Indeed, many short-wheelbase 911s lose these weights over time. Porsche's permanent solution was to extend the wheelbase in 1968. Anything else? Rare reinforced Nadella driveshafts, which are the same as you'll find on the 904 and 906 race cars. Certainly not standard fitment, unless the factory was out of driveshafts that day. This rather agricultural means of taking power from the transaxle to turn the rear wheels was, perhaps, fitted for a bit of light competition work during the car's time in America? The jury's out on that one.

How did Jussi happen on this 911? "It came to market at Cooper Classic Cars in New York and then made its way to Historika in the UK. The car was precisely what we were looking for to start Classic Carrera and our restoration

CARRERA CLASSIC II
MCT-51



Above Short-wheelbase 911s built in 1965 are Carrera Classic's specialty

Facing page Two-litre boxer is a fantastic pairing with the 911's lightweight body

journey." Historika? We know this Suffolk-based company well, as does Jussi via racing in the Peter Auto 2.0L Cup, with Historika being a prominent and successful team in the series. "Through Historika, this 911 passed to a private owner before being advertised for sale by Trofeo Cars, based in North Norfolk, not far from Historika's base in Ipswich." Trofeo Cars head honcho, Alastair Iles, will be known to many of our readers, not least from his ownership of the Mickie Most Kremer 935 lookalike 911.

"I was in the UK and went to view this 911," Jussi continues. "It was the usual story, a car looking pretty good from a distance. Close up, however, it was clearly in bad shape. Really close up, really bad shape. Amazingly, when the Porsche arrived at Trofeo Cars, it had a valid MOT, but failed basic safety tests when Alistair attempted to apply a fresh ticket, the structure proving itself heavily corroded. Still, the car was drivable and it was complete. I bought it and then had it stored with CARS until it was time to bring the Porsche to Finland for its restoration, spanning 2016 to 2019."

As restorations go, it was, as Jussi puts it, a big one. Well, they're all big when you're returning early 911s to as-new condition, but he reserves 'big' for restorations requiring the works, certainly where bodywork is concerned. "It was in incredibly bad condition. Evidence of bad repairs, lots of filler. The lower half of the body was rotten. It was all fixable, but doing work like this to a high standard takes time." Indeed, this restoration took close to two thousand hours, which is pretty much maximum in Jussi's experience. Fortunately, every body component is available to purchase new, either from Porsche Classic or in the form of high-quality aftermarket panels from JP Group brand, Dansk.

THE WEBASTO HEATER IS FULLY FUNCTIONING, SOMETHING JUSSI INSISTS ON ACROSS ALL CARRERA CLASSIC RESTORATIONS

Pricey, though. Try doing this restoration today and it may well prove economically prohibitive. A good reason, then, to buy complete from Carrera Classic? Jussi nods ruefully at the suggestion.

In terms of engine and drivetrain, only the original Solex carburettors were missing, but a set of period originals were sourced and fitted. Of course, the flat-six was fully rebuilt, likewise the gearbox, both handled by Finnish engineering specialist, Pukema. A mild performance tweak Carrera Classic and Pukema apply to engine rebuilds such as this is to fit 80.5mm oversized piston with higher compression ratio. As a result of a very careful build, plus carburettors prepared by Performance Oriented in the US, Jussi reckons power is around 140bhp, a gain of ten horses over the standard output.

The gearbox was rebuilt with new pinion and ring gear, but otherwise presented no issues. Although it's definitely original to the car, the hand-written engine and gearbox

details on the Kardex has it logged as a Type 901/0, which is typical of the sort of post-holiday Porsche confusion during model-year changeover in the period.

The interior has been restored to its correct standard specification, which is to say black leatherette with black and white Pepita inlays. As with all Carrera Classic interior work, the job of materials and trimming is outsourced to Lakeside in the Netherlands, whose work we can heartily vouch for.

Anything else? Yes, the Webasto petrol heater is both present and fully functioning, something Jussi insists on across all Carrera Classic's early 911 restorations. Many other specialists in the field would simply abandon the rather primitive and possibly even scary device. Job done, then? Not quite. There is putting the miles on and, also, chassis configuration. The former allows Jussi and Raili to enjoy the fruit of their labour, whilst getting ignition and fuelling systems super-optimised. How many times have out-of-balance carburettors and iffy ignition ruined a drive? Many. Getting the balance correct is a skilled job, one fading with time. Fortunately, when you're racing early 911s, the know-how is baked in.

The chassis? Again, this comes from racing experience. Flat-out around Spa, for instance. "These 911s really respond well to corner-weighting and cross-weighting across the axles," Jussi reveals. "It makes sure weight is distributed equally to all four corners via ride height and spring adjustment. Tyre pressures come into play, as does making sure there is no play in any of the steering gear. Get all that right, get the engine on song, and then these early short-wheelbase 911s really come alive." And so they do, as Jussi demonstrates one last time, flicking expertly up the dog-leg gearbox and getting this truly immaculate 1965 911 dancing on its skinny radials. It's rather like getting a speedboat to skim and 'plane' above water. It's what makes the 911 experience such a captivating one. That, the noise and the revvy power delivery from the sonorous flat-six.

It's time for us to bid farewell to Finland. For now, at least. Carrera Classic will be back in these pages soon, with Jussi's detailed analysis of the differences between successive model years of early 911. He teases with talk of a 1955 356 Cabriolet fresh out of restoration, too. A return visit to Vaasa might be sooner than we thought. Watch this space. **CP**

Above An early Carrera Classic restoration sourced from the UK after the car spent many years residing in the USA

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THE RACING BARON

Among the many who have peopled the motorsport world, few have possessed the charisma of Huschke von Hanstein, who scored his greatest win with BMW, before nurturing Porsche as both company and competitor…

Words **Karl Ludvigsen** Photography **Ludvigsen Partners, Porsche Corporate Archives**

The manner in which Baron Fritz 'Huschke' Sittig Enno Werner von Hanstein, a young agriculture trainee, became devoted to motor racing — specifically, to endurance runs with a motorcycle and then in cars — was fairly logical. His transformation took place around 1930, when he was nineteen years old. As was the norm, his parents opposed. The Prussian educational style didn't countenance well-to-do families with spending money, after all. Huschke's first vehicle (a used Triumph 250 two-wheeler) was therefore part-financed by his girlfriend.

Although he could trace his ancestry to the eleventh century, he was not one to stand on principle. His nickname hinted at his 'hustling' demeanour, and as a man of action, he later legally adopted the name Fritz-Huschke. His father, Carlo, was a member of landed nobility (status referred to in Prussia as 'junker') and an officer in the Prussian Army, riding with the Wandsbeker Blue Hussars. Huschke's mother, Anni, was daughter to the head of Germany's largest seed producer, Dippe, located in Quedlinburg, the town in which the family settled after the First World War.

Complementing a solid education (high school, college and courses completed in agriculture and business, as well as law studies up to junior-barrister level), young Huschke knew how to ride a motorcycle. He had been transporting eggs on a Wanderer 750 belonging to one of his family's household servants, whose wife operated a chicken farm. Generic riding as a sport was permitted and supported, hence Huschke became a tournament and race equestrian.

Soon, an inclination to English style became apparent. This was enhanced by a year of college in the cathedral city of Exeter, located in Devon, South West England. "I spent a wonderful year in England," Huschke later related. "Among professors and students, I made friends for life. I completed my studies and achieved my first international success in motorsport, which would help me greatly in Germany. I spent the year hopping from ball to ball in London, went hunting in Scotland and enjoyed the Isle of Man Tourist Trophy motorcycle race. When I returned to Germany, however, the Third Reich had been declared." After studies in law at Göttingen, Huschke established a business apprenticeship in Hamburg. He rode to dirt-track motorcycle races in Hamburg-Lokstedt on a four-valve Rudge, complete with umbrella and bowler. He served as a works driver for the Ardie motorcycle factory, but his motorsport career really took off when the car-making firms of Adler and Hanomag expressed interest. The basis for many long-lasting friendships was laid, such as those with Adler's racing boss of the time (and later ADAC Sports President), Paul von Guillaume, as well as Walter Glöckler, Petermax Müller, Helmut Polensky, Rudolf Sauerwein and Walter Schlüter. These names would reappear in Porsche's post-war sporting history.

WHILE MOST 328s WERE WHITE, HIS WAS A DEFIANT BLACK, STANDING OUT AMONG ITS RIVALS AT THE NÜRBURGRING

Hanover-based Hanomag was respected for the toughness of its cars in demanding cross-country tours organised by the national motorsport association. Huschke's first such outing was the two-thousand-kilometre 1934 Tour of Germany, which he contested in a 1.5-litre Hanomag Rekord. Soon, his aggressive driving style was recognised. "Needless to say," he recalled with a smile, "nobody wanted to ride with me. Everybody thought I was a lunatic behind the wheel."

WHATEVER THE WEATHER

A certain determination was advantageous on roads often rough and unready. Terrain included broken surfaces on block treads, in snow with chains and in the wet with summer tyres featuring extra transverse grooves cut into their treads with a circular saw. There was no aquaplaning — the tyres were too narrow for that. Huschke performed well, but he remained classified as an amateur in the pre-war era, even as a factory driver, chiefly because there were expenses paid for major endurance runs and cross-country events, but no salary.

Having made his bones with the Hanomag team, Huschke took part in home events and trials in Austria, Poland, Bulgaria and Africa. He won the Rallye Morocco with motor dealer, Glöckler. He also drove in the Rallye Monte Carlo at a time when competitors had to fight nature's interventions. There were no cleared roads, for example. Anybody who was stuck had to shovel. In Italy,

Facing page A race at the Nürburgring deposited ample debris on von Hanstein, but he relished his chances to drive other people's race cars

he came to grief on Mount Etna of all places, not far from his southern starting point of Palermo.

He contributed to Hanomag winning the team prize in the 1936 International Alpine Trials. On the way home to Hanover, he decided to leave the route to visit a friend. While on this detour, he asked his mechanic to drive in order for him to grab some shuteye. The result was an off-road crash and Huschke suffering a broken right shoulder. Several relays of transport brought him home to Quedlinburg, where the damage was assessed and set in plaster. In spite of several re-settings, the shoulder never healed properly, leaving him with limited right-arm movement for the rest of his life."It all turned out for the best," he reflected many years later, acknowledging his injuries kept him out of military service. Though nonpolitical, he helped some Jewish friends in Hungary and landed himself a jail term.

For coming into conflict with the Gestapo, a disciplinary assignment with tank recovery on the Eastern Front resulted. Huschke nearly got stuck in the Kurland Basin, but luckily, near the end of the war, he discovered the mass of American troops stationed in Bavaria.

Reverting to Huschke's pre-war career, intermixed with the activities above were his responsibilities to home and family. He continued his studies in Berlin until he was obliged to step more fully into the business world after his father's death in 1936. Huschke took responsibility for the family holdings, including the Dippe seed business and its offshoots at home and in Poland. He continued his fruitful racing activity with Adler, which had introduced the first seriously streamlined sports-racer.

Beginning 10th July 1938, he campaigned an Adler in the 24 Hours of Spa, co-driving to a sixth-place finish. Two weeks later, he was competing at the Nürburgring in a race for two-litre sports cars in the most desirable four-wheeler of the era: the exciting BMW 328. First seen in 1936, this smoothly shaped two-seater was powered by a two-litre six-cylinder engine making use of cylinder head proposed by Rudolf Schleicher and realized by fellow BMW engineer Rudolf Flemming. It raised output from 50bhp at 3,750rpm to 80bhp at 4,500rpm, romping on to 90bhp in racing trim.

After Ernst Henne raced the 328 prototype with success, demand for this thoroughly modern-for-the-era sports car

Above Born on January 3rd 1911, Huschke enjoyed lapping the extensive courtyards of the von Hanstein estate

Below A functionary is readying the starting flag for the von Hanstein BMW 325 Coupe in the 1940 Mille Miglia

Above and right Campaigning the 325, as well as the Pertrix-sponsored Müller-built racer

Below January 1951 saw Huschke driving a VW at the Monte Carlo Rally with co-pilot, Porsche engineer and, later, company CEO, Ernst Fuhrmann (left), while Jürgen von Goerne stands right

was insatiable. It was also timely for Huschke, who, as a businessman, could now afford the asking price of 7,400 Reichsmarks. While most 328s were white, his was a defiant black, standing out among its rivals on the Nürburgring grid, comprising more than a dozen 328s. In the race, held July 24th, he gave way only to the experienced Paul Greifzu, finishing second among the ten top finishers. All of them drove BMW 328s.

With the exception of a race at Hockenheim in October (in which he finished fifth), Huschke concentrated on hill climbs for the rest of the 1938 season. A major target was the event at the demanding Grossglockner Pass, where he met — not for the first time — Professor Ferdinand Porsche and his son, Ferry, who was Huschke's age. Though he finished third, Huschke collected the German Hill Climb Championship in his class because those faster than him were foreigners, ineligible for the title. For the 1940 Mille Miglia, held on April 28th and proving to be the final sports car race of the pre-war era, he drove a BMW. With backing from the German government, the Munich manufacturer had gone all-out for this chance to go one-up on the haughty Italians.

DRIVEN BY HUSCHKE AND MÜLLER, IT WAS THE ONLY ONE OF EIGHTY-EIGHT FINISHERS NOT MADE IN ITALY OR ENGLAND

The company had prepared five race cars, all with the two-litre engine, three with open bodies and two closed. Of the latter, one was heavily modified, the other more sedate. In an impressive silver parade, all were driven from Munich to the start line in Brescia. Although reaching the traditional thousand miles, the 1940 Mille Miglia required ten laps of a hundred miles on a fast and flat triangular circuit of local roads. Having had experience with Adlers at Le Mans, Huschke was happy to take the closed BMW. "I knew the car would track with any crosswind," he said, "much like a Zeppelin." Less familiar with the style was his co-driver, Walter Bäumer, who was more experienced with smaller cars.

Open bodies were fitted to the 2.5-litre Alfa Romeo Type 6C 2500 SS machines, of which nine were mustered for the start, with cars waved off sequentially, as was the norm. Huschke started and Bäumer prepared to take over at the first fuel stop, but team boss, Adolf Hühnlein, stepped forward. "We know you're just as fast as Hanstein," he told Bäumer, "but he's familiar with the car and has his own special way with it. The forces should always be the same. We don't want to risk

anything by changing drivers." With Bäumer's acquiescence, the number seventy BMW coupe carried on to the finish, Huschke halting twenty miles beforehand to let his co-driver take the wheel. This had been no walk in the park for Huschke, whose winning speed was 103.58mph. He finished fifteen minutes ahead of the second-place Nino Farina, who was driving an Alfa. Other BMWs finished third, fifth and sixth, with the sedan-like coupe the sole retirement. With Germany at war with most of its neighbours, this result was a roaring success for national pride.

SEEN AND HEARD

Fast-forward to 1949, when scarcely anybody in Germany spoke of motor racing. Now, a German sports car again started for the first time abroad, taking up its position in the Targa Florio. Driven by Huschke and Müller, who built the bespoke mid-engined marvel, it was the only one of eighty-eight finishers not made in Italy or England. It finished fortieth overall and thirteenth in the 1.1-litre class. Later that year, a deal with electric-parts maker, Pertrix, enabled Huschke to make runs for speed records, efforts attracting attention from a then new manufacturer named Porsche.

The seed-growing firm Huschke had managed before the war had been expropriated. Only minor remnants of this trade, one of the largest of its type in Germany, were left. He laboured at re-establishing the firm, but found doing so immensely unattractive. Unsurprisingly, when he was offered the position of Sales Manager for the Hoffmann works, building Italian Vespa motor scooters in Germany, he accepted. It should be noted, the scooter was a typical post-war item, exploiting the large number of small tyres left around from military supplies. The Vespa was the first and most popular product of its kind.

With his natural talent for public relations, Huschke sensed what was needed to secure the fame of a vehicle which was regarded as something of a joke in certain circles. Thus, the *Deutschlandfahrt*, a sporting undertaking, saw a team of experienced racing drivers (Huschke, Müller and Polensky) scooting through the countryside on Vespas. In 1950, however, the brand was left in the dust when Huschke was put in touch with Porsche by former Auto Union race boss, Karl Feuereissen, then Sales Manager for Volkswagen. Huschke only wanted to buy a car, but his request turned into a job when he and Ferry Porsche clicked. For the modest and thoughtful young Porsche, the ebullient and outgoing

Above Speed records set by a Gmünd-built 356 were celebrated by (L-R) Walter Glöckler, Huschke, Petermax Müller, Hermann Ramelow and Richard von Frankenberg

Below At Le Mans in 1953, Huschke (right) sits next to Hans Klauser (long-time Porsche engineer), while Ferry holds the latest race standings

P
MINTEX

Huschke was the ideal partner, even if when accepting a job with Porsche, Huschke was told there would be no firmly outlined contract and no departmental budget for him to work with. This remained the case for a considerable time.

In June 1950, when Huschke's employment with Porsche was on the horizon, he married Ursula von Kaufmann, five years his junior. The two had long been betrothed. Fittingly, the ceremony took place at the Nürburgring during a race weekend. Both were passionate skiers and Ursula was a natural hostess at the von Hanstein home in Stuttgart-Kräherwald. Huschke left Vespa and took up his Porsche post in the spring of 1951.

FREE WHEELING

"At first, I was Girl Friday, a kind of jack of all trades," he remarked. "Together with my friend, Richard von Frankenberg, and a secretary, we occupied a small office in a wooden shed in Porsche's Werk II plant. When visitors arrived, one of us had to leave the room, but I was hardly ever there because I had to visit problematic or prominent customers. I had a 'demonstrator' 356 and could drive the car to my heart's content. I started teaching our salespeople how to handle the little 1.1-litre Porsche, which at the time, was a highly oversteering sports car."

In the autumn of 1952, he was officially named as Porsche's Press Officer and Motorsport Director, a dual responsibility he would carry for sixteen years with flair and brilliance. "There was certainly no budget available for racing," he recalled of his first Porsche years. "I had to find outside help. Today, we'd refer to them a sponsors. With tyres and a little bit of money from Dunlop, and with similar funding from BP, as well as some assistance from Bosch, we struggled along and managed to keep the works team going."

Huschke's race-managing career was one of the most remarkable in German motorsport history, along with that of Alfred Neubauer. Unlike the burly Mercedes man, however, Huschke continued taking to the wheel. In 1961, for instance, he was still very active, demonstrated by six entries in Italy and France. In 1963, he finished seventh in the first American Challenge Cup for closed touring cars, covering more than 250 miles at Daytona. His mount was a racing version of the 356, with which he finished fifteen laps behind the winner on a day best described as rainy, cold and windy. This may sound belittling, but he was just ahead of Jo Bonnier in a similar car. In all, Huschke entered eighty-one races, of which he finished sixty, winning his class in twenty outings and scoring six outright wins.

The list of famous names from Huschke's race-managing

Above Huschke moving a 550 racer powered by the new four-cam boxer at the Nürburgring in 1953

Below In 1954, Porsche supported the annual driver-training activity at Switzerland's Campione, attending by (L-R) Karl Kling, Huschke, Wilma Kling and racing ace, Hans Herrmann

Above During the Eifelrennen at the Nürburgring in the spring of 1950, Huschke and Ursula tied the knot

Right With Phil Hill, Joe Buzzetta, Gerhard Mitter, Ferry Porsche and (in group shot) Peter Falk, Hans Mezger, Helmuth Bott, Jochen Rindt, 'Quick' Vic Elford and Paul Ernst Strähle

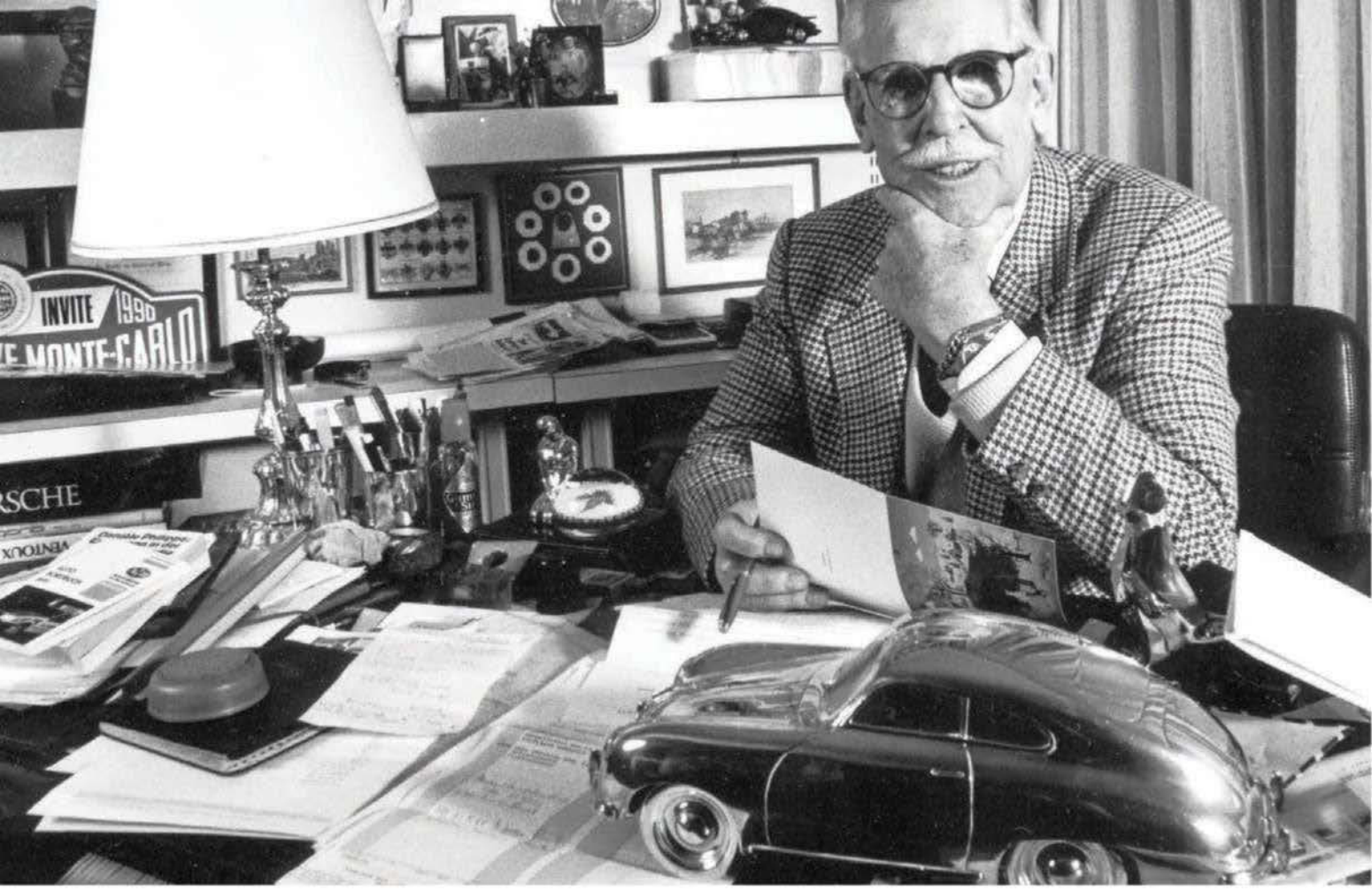
days is long and colourful. The best aces appreciated the way he ran the show. The cars were brilliantly prepared and the food was good. This meant many drivers were prepared to work for race rewards without troubling Porsche's slender budgets. One particular driver, however, absolutely demanded money to drive for the Stuttgart concern. It was Stirling Moss, who Huschke recognised was worth shelling out for. Consequently, Moss covered the 1960 season with the Type 718/1 single-seater, painted blue for the Rob Walker stable. Another exception was Edgar Barth, a tremendously talented driver for EMW in the East Zone. Huschke needed funds to smooth the many paths to be negotiated on Barth's escape into West Germany.

ONLOOKERS SPECULATED WITH PIËCH NOW IN CHARGE, PORSCHE'S MOTORSPORT ACTIVITIES WOULD BE CARRIED OUT MORE RIGOROUSLY

Huschke took on another useful challenge. "I was concerned," he related, "because in Germany, unlike in neighbouring countries, very little was being done for future generations in motorsport. When I saw a small, affordable race car at one of our American dealers, I became excited by its prospects. It consisted of a motorsport body sprung by relatively basic Volkswagen suspension components." This would have been during a visit to Florida's Brumos to witness a March 1963 Porsche entry at Sebring. On his return to Stuttgart, Huschke attempted to convince Ferry Porsche to establish a single-make series showcasing these curious cars in Germany. "I reasoned it would give a tremendous PR boost to German motorsport and, of course, to Porsche. Ferry was sceptical at first, primarily because the cars used Volkswagen components." Huschke subsequently took his idea to Carl Hahn, who was in his chair as head of Volkswagen of America. Getting Hahn's assent to the scheme, Huschke arranged for the Volkswagen man to meet with Ferry, who was won over. The European Vee project was approved. It should be noted, Ferry's reservations were eased by the application of Hahn's hundred thousand deutschmarks, equivalent at the time to $25,000.

Early in 1965, Porsche imported ten kits, both Beach and Formcar designs. "Our success surprised us," Huschke would go on to admit. "We only wanted to see how much interest there was and whether companies could be found to build the cars. The matter took off on its own. In short order, several clever young racers built their own cars based on the American examples. Overnight, the cost-effective Formula Vee became, numerically, the world's biggest racing car category. There were 2,500 of them. Porsche and Volkswagen couldn't lose."

All was going well for Huschke until a new Porsche personality entered the picture. This was Ferry Porsche's nephew, Ferdinand Piëch, son of Professor Ferdinand Porsche's daughter, Louise. Moving up on the engineering



Above At his desk in Stuttgart-Kräherwald, Huschke was surrounded by reminders of a career well realised

flank, Piëch was not only more deeply involved with production Porsches than Huschke, but also extremely active with race cars and their deployment. His technical approach to competition was not aligned to Huschke's somewhat didactic methods. Furthermore, he had an eye on Gianrico Steinemann, a twenty-nine-year-old Swiss magazine editor and driver of Porsche's latest racers.

Between Piëch and his uncle, a decision was reached. On November 4th 1968, a Porsche news release stated "Herr von Hanstein" had decided to relinquish his "current responsibilities" in favour of concentrating on the "special requirements" of Ferry Porsche, effective the beginning of 1969. When the other shoe fell, Rico Steinemann arrived. He, like Huschke, was given both press and motorsport department responsibilities. It might have made sense at this juncture to divide the demanding posts between the two men, but such a change was not in accord with the tense political situation prevailing at Porsche. Steinemann was the personal choice of Piëch — through Steinemann, he had an ally in two important company departments.

Onlookers speculated that with the demanding Piëch now in full charge, Porsche's motorsport activities would be carried out more rigorously, implying the friendly Huschke was more carefree. The character of Porsche racing did indeed change. Put it this way, Huschke was flexible in allowing his drivers to form long-distance race pairings with whom they were comfortable.

Once the flag fell, however, "it was very regimented," Joe Buzzetta recalled. "You couldn't pass your fellow team driver. At a certain point in the race, say at the ninth hour at Sebring, if Herrmann was first, Mitter second and Buzzetta third, at the next pit stop, Huschke would tell us how we'd finish. If he liked a particular driver, he'd say it should be his race." Under Piëch, the philosophy was entirely different, Buzzetta related. "You never really knew where you were or how fast you were supposed to go. You just went out and raced. I saw Vic Elford and Jo Siffert, two of the era's really fine drivers, jostling with Gerhard Mitter in a tremendous three-car battle, each of the Porsches capable of destruction at any moment. After this kind of race, nobody would say anything other than to acknowledge a new lap record or whatever else had been achieved."

Huschke had little time to savour his role as Ferry's amanuensis — Porsche joined forces with Volkswagen to create a distribution company shared between the Stuttgart and Wolfsburg brands. The alliance sold both the 911 and the new-for-1969 mid-engined 914, which replaced the 912. The newly formed business handled all aspects of sales, including advertising, promotion, public relations, distribution, parts and servicing, starting in October 1969. Surprising many industry executives, the appointed press and public relations man was Huschke.

Moving with the relevant staff to a new sales and spare-parts headquarters at Ludwigsburg, he was out of his métier. By 1971, the new initiative was history. Huschke always abjured politics, yet he found he possessed natural diplomatic talents in motorsport, leading to his appointment as Sports President of the Automobile Club of Germany and President of the National Motor Sport Commission. Other commendations followed. Indeed, whenever the motorsport world came calling, his famous moustache bristled cheerily. His final appearance was on March 5th 1996. Whether the world thought of him as the Racing Baron isn't known, but the title will do, and well. **CP**

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LOOK SMART

Wastegates play a vital role in controlling your turbocharged Porsche's boost in check...

Much has been written about the performance benefits of forced induction and turbocharger technology, but what of the supporting equipment keeping boost pressure under control? The world of tweaked and tuned engines all too often gets hung up on the size and quoted power capabilities of a snail-shaped bhp booster, but even the world's greatest turbocharger won't deliver the performance it promises without accurate boost management.

Granted, a gigantic Garrett or a massive KKK is an exciting engine component to tell your mates about, but the wastegate and actuator you invest in (and the way these parts are set to operate) are just as important as the specification of turbocharger your car makes use of.

Flick through the following pages and read about the design, development and application of these important parts. By the end of the article, we hope you'll have a better understanding of the components that help to produce a turbocharged Porsche's boost. Widowmakers at the ready...

WHAT IS A WASTEGATE?

A wastegate is essentially a valve which 'wastes' the gas pressure we don't want sent into a turbocharger. When a wastegate is shut, all exhaust gases exiting the engine are forced through the turbo. This creates boost, which encourages more exhaust gases to be produced. The turbo then spools even faster, creating yet more boost. By allowing some of the gases to bypass the turbo through a wastegate, we have control over how fast the turbo spools, which gives us the ability to control the amount of boost being generated. Without a wastegate, the cycle of increased boost pressure would continue until vast pressure forced mechanical failure. That said, some variable-geometry turbochargers (VGT) don't require a wastegate thanks to aerodynamically shaped vanes in the turbine housing at the inlet. The vanes rotate in unison to vary the gas swirl angle. For the vast majority of turbocharged cars, however, a wastegate is essential forced induction componentry.

INTERNAL WASTEGATES

There are two types of wastegate: internal and external. An internal wastegate is cheap and easy to manufacture, and is usually what you'll find as part of a factory-fitted turbocharger. In this design, a wastegate hole is located inside the turbocharger exhaust housing. This hole offers exhaust gases a route to escape, enabling them to exit without passing through the turbocharger. A simple penny washer (controlled by an actuator) blocks or lifts away from the hole, managing the level of gas bypassing the turbo. As we've already highlighted, this activity influences the speed the turbocharger is able to operate at.

ACTUATORS

An actuator's job is to open and close an internal wastegate. A spring and diaphragm sit inside the actuator. The spring applies force in order to keep the wastegate closed. It remains in this state until enough boost pressure is produced to overcome the rating of the spring fitted. At this point, the spring starts to compress, a condition which results in movement of the actuator arm and the opening of the wastegate valve. It's worth noting the rating of the spring will drastically influence a turbocharger's ability to perform at its full potential.

As you now know, an actuator's spring holds the wastegate shut. In other words, if we want to produce more boost, we need to ensure the wastegate remains closed until we're ready to ease off. A spring with a stronger rating will help, which is why many wastegate manufacturers, such as Turbosmart, produce spring kits featuring a variety of different springs with different load ratings. You simply swap the actuator spring for one better suited to the target boost range. Of course, a standard-specification sports car will be producing factory-prescribed power, which is why turbocharged production vehicles tend to come fitted with a simple flat-rate actuator spring designed to compress at a specific boost level. In other words, if Porsche wants your car to produce 6psi boost, then the spring fitted to your car's actuator will open the wastegate at 6psi.

When you start modifying, the need to change the actuator spring may arise, but we can also alter boost pressure above the diaphragm. For example, in an actuator's most basic installation, we connect a pipe from the turbocharger compressor housing to the actuator, enabling the latter to be subjected to boost pressure. Using the same 6psi example scenario as outlined in the last paragraph, when the turbo produces 6psi, the actuator sees 6psi, which is enough to compress the spring and allow the wastegate to open. This means the turbo can only produce a maximum of 6psi, but what if there was a leak in the pipe between the turbo and the actuator? For argument's sake, let's say 4psi is lost due to a ruptured hose. In this instance, the turbo would be producing 10psi before the actuator spring sees the 6psi it needs to open the wastegate. Deliberately creating and controlling a 'leak' like this means we can bleed-off a specific amount of pressure to accurately alter the amount of boost produced without the need to change the spring in the actuator.

The crudest way to achieve this is by way of a simple bleed valve, but most modern turbocharged sports cars feature electronically controlled boost solenoids managed by the host vehicle's ECU or a standalone electronic boost controller. This method enables instant changes in pressure to be achieved in accordance with variations in engine operating behaviour (influenced by factors including speed and throttle position, gear and ambient temperature).

UPRATED ACTUATORS

A factory actuator will be perfectly adequate for standard power, but if you're planning to ask your car's turbocharger to produce more boost, OEM parts can quickly become a limitation. In truth, an OEM actuator spring tends to be soft, which can result in a series of unwanted effects when it comes to tuning. In some cases, you may run into issues with exhaust back pressure, whereby the exhaust gases on the exit side of the wastegate overcome actuator spring load and force the wastegate open prematurely. As Gary Conway, Managing Director at London-based premium sports car tuning specialist, GCAP Performance, explains, "OEM wastegate actuators tend to use fairly soft springs, which can allow wastegates to start opening long before peak boost is reached. The risk is losing out on much of the power your car is capable of producing. A stronger spring will provide faster spool-up, less boost drop at high rpm and a more stable, more responsive boost curve."

Unsurprisingly, the spring inside a modern uprated actuator can be switched to meet the demands of the host engine and turbocharger. Additionally, modern actuators feature an increased surface area in the diaphragm housing (an important design consideration), which equates to more mechanical advantage over the actuator — your Porsche benefits from quicker peak boost and you're able to control it fast due to the altered diaphragm surface area. This aspect of wastegate and actuator design is referred to as 'control ratio'.

More often than not, uprated actuators offer improved reliability over OEM actuators thanks to high-performance fluorosilicone diaphragms with Nomex reinforcement. Additionally, most aftermarket performance actuators are configurable, allowing fine-tuning through selectable springs and preload adjustment.

EXTERNAL WASTEGATES

An external wastegate does the same job as an internal wastegate, but as its name suggests, is a separate component to the turbocharger. Inside, you'll find a spring and a diaphragm (as you would if looking inside an actuator), but rather than the parts moving an arm opening a valve, they control the valve directly.

The main benefit of an external wastegate is how the part allows us to use a much larger wastegate hole through which exhaust gases can bypass the turbocharger. For example, many modern aftermarket wastegates can be bought with an exhaust gas channel measuring between 38mm and 60mm in diameter. To put this into perspective, the standard internal wastegate on a Garrett T4 turbocharger is just 22mm. A larger hole allows us to control boost far more accurately, primarily because more exhaust gases can be allowed to bypass the turbo. A secondary benefit of using an external wastegate is that the turbocharger can use a more refined design of exhaust housing thanks to the absence of an internal wastegate mechanism.

On a conventional turbocharged engine, an external wastegate needs to be located in the exhaust manifold between the cylinder head and the turbocharger. Many aftermarket performance exhaust manifolds will have bosses already fitted to enable the use of an external wastegate. That said, be careful if using a *twin scroll* manifold — because of the divide within the pipework, you'll need to ensure you're using two external wastegates, one per scroll. In truth, with careful preparation of the manifold, you can use a single wastegate in this instance, however, there is plenty of evidence to support claims this is a compromise costing you many hundreds of rpm in boost response.

Most external wastegates offer multiple boost ports, meaning you can provide boost above and below the diaphragm for even greater boost control. Incidentally, when talking about wastegates, you may have heard owners of older turbocharged Porsches mention *boost creep*. This is where a turbocharger produces more boost than desired due to the wastegate not being able to ditch exhaust gases quick enough. An external wastegate will eliminate the problem thanks to a larger channel for gas to escape. Some recently developed external wastegates, such as the Turbosmart e-WG45 and e-WG60, give you extreme control, the likes Porsche engineers working on the original 911 Turbo can only have dreamed about. Independent of any reference signal, without the need for compressed gas and fully adjustable from your tuning interface, there's no need to change springs for different tunes or applications. In other words, boost control is now completely adjustable from a laptop. Put simply, as boost control strategies became more complex, a solution was required for maintaining performance and reliability, but bolstering it with truly infinite control. The resulting products operate on a current draw whilst providing fast and efficient boost control, in some cases up to 120psi. There's provision for water cooling, too.

As a case in point, Design 911 offers modern replacement actuators for the 993 Turbo, with spring pressures ranging from 5psi (spool-up) to 20psi (tuned running pressure).

WATER-COOLED WASTEGATES

In addition to boasting modular interchangeable actuators, as well as independently oriented actuator bases, new 'strap type' V-band clamps, a diaphragm design offering linear travel (regardless of spring), optimised pressure, user-defined valve positioning, increased thermal performance and superior gas flow, many modern external wastegates feature integrated liquid cooling ports following successful adoption of the technology in motorsport environments. Liquid wastegate cooling for the majority of applications shouldn't be required, but it's useful if your setup dictates less than optimal positioning and/or a particularly hot engine bay.

TURBOCHARGER SPEED SENSORS

In many motorsport applications, a dedicated turbocharger speed sensor is used to accurately measure how fast the turbo is spinning. This tells the driver and their engineers how much boost is being produced at any given time, and is of particular significance at high altitude, such as Pikes Peak, the highest summit of the southern front range of the Rocky Mountains in Colorado. Standing more than 4,300 metres tall, air pressure at the famous hill climb venue is close to 580 millibars, which means a turbocharger needs to spin almost twice as fast as when producing the same level of boost at ground level. Ordinarily, such fast operation would result in catastrophic mechanical failure, but with a turbo speed sensor fitted, the host vehicle's ECU can make the necessary alterations to maintain safe operation.

BLOW-OFF VALVES

A blow-off valve (often referred to as a dump valve or recirculating valve and available to order direct from Design 911 and GCAP Performance) is simply a pressure relief valve allowing excess boost pressure to escape when the throttle is shut. On most conventional applications, when the throttle is wide open, the boosted air from the turbo is going straight into the engine, but what happens when the throttle closes during gear changes, lift-off or braking? In these situations, the boost air is stifled by a closed throttle body, encouraging air to travel back from whence it came. The air hits the spinning blades of the turbo, resulting in a distinctive 'chatter' sound (known as *turbo stall*, but often mislabelled as *wastegate chatter*). This condition is less than ideal, although on most moderately tuned road cars, isn't massive cause for concern. For big boost race or drag cars, however, this can be hugely detrimental to the turbocharger's health.

To prevent damage occurring, a blow-off valve is fitted between the turbo and the throttle, allowing stifled air to escape. The part is usually controlled by a vacuum source, which opens the valve and frees the air. Many modern turbocharged production cars feature a blow-off valve built into the turbo's compressor housing. The valve fitted is usually a plastic unit featuring a small spring and diaphragm, which is fine for a standard road car, but a bad idea for a tuned engine enjoying enhanced levels of boost. Most modern aftermarket blow-off valves feature a robust body and a piston in place of the weaker diaphragm design, promoting longevity and reliability, as well as resistance to extremes of heat and pressure. Much like actuators, a blow-off valve can be fitted with a variety of different springs, enabling you to tailor the part to your Porsche's needs.

The inner workings of a blow-off valve are simple, with differences in design being where the trapped air goes after it is released.

Vent to atmosphere

The simplest way to get rid of excess boosted air is to jettison it straight into the atmosphere. This is a fast and efficient way of relieving system pressure. It offers performance advantages too: when we vent air to atmosphere, the turbo keeps spinning, even with the throttle closed. In other words, the turbo is already spinning when we open the throttle again (after a gear change), enabling the immediate creation of boost pressure.

There are, however, drawbacks to this design. For example, when it comes to modern cars with mass airflow (MAF) sensors, unmetered air can be allowed into the inlet system, while already metered air has the potential to escape, momentarily encouraging the engine to run rich.

Recirculating valve

A recirculating-type blow-off valve operates in the same way as other types of blow-off valve, but rather than dumping trapped air into the atmosphere, it's plumbed back into the inlet before it enters the turbocharger. As the air is channelled back into the system before the MAF, there's no chance of unmetered air being introduced or escaping. This is obviously good news for the air/fuel ratio.

Dual port

Recirculating valves tend to be much quieter than vent-to-atmosphere dump valves, but whether you think this is an advantage or drawback is down to personal preference. What if you want a blow-off valve recirculating air (enabling you to avoid MAF sensor issues and emptying of your car's inlet tract), but you still want to hear that joyous blow-off valve *badoooosh*?! Many aftermarket manufacturers produce a range of *dual port* products which do exactly that. These brilliant blow-off valves recirculate some of the air back into the inlet whilst dumping the rest of the trapped air direct to the atmosphere. This design enables quiet operation around town, with the benefit of quick expelling of trapped inlet air under heavy boost conditions. **CP**

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GLASS HOUSES

Fixed glass for the rear window of the updated 911 Targa was sensible, but no less special than the retractable soft-window of the launch model...

Words **James Fossdyke** Photography **Dan Bathie**

D
S GO 277H
Porsche Museum

Above Carrera 3.0 is a rare beast, with few examples made in Targa or coupe guise prior to introduction of the 911 SC

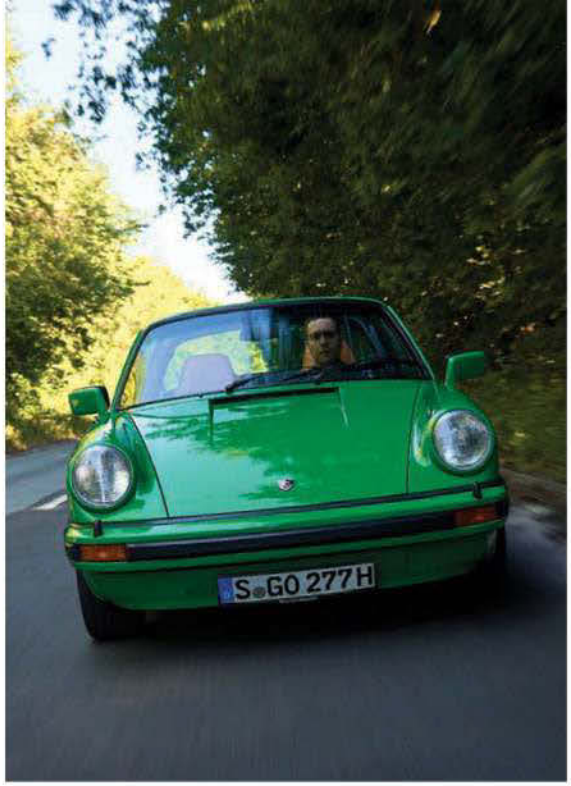
There aren't too many applications where glass is the best material for the job. We should all know jawbones, houses and hammers are probably best made from other materials. I'm still far from convinced by the virtues of the fabled glass slipper, but we can all agree windows — the kind you find on your house, not your laptop — are probably best made from glass. And yet, when Porsche built the first 911 Targa for the American market, it was so hell-bent on creating a cabriolet with a roll cage, it forgot this simple truism and made use of a soft plastic rear screen instead.

IF YOU FORCED ME TO TAKE MY PICK OF THE PORSCHES I'VE DRIVEN THIS YEAR, I'D BE HARD PUSHED TO CHOOSE BETWEEN THE CARRERA T AND THIS

As glorious as the soft-window Targa was, the flexible, fiddly, zip-in plastic rear hood was rapidly dropped by Porsche bigwigs in favour of a gorgeous fixed piece of heated, curved glass. For the G-series Targa, glass continued in situ alongside a more-or-less unchanged fabric roof panel, which folds exactly the same way as that of its predecessor. This means there's a brace of folding crossmembers allowing it to concertina like a leaflet, but lock into place when fully extended, creating a rigid frame for the fabric hood. This then slots into place with the help of two locating pins anchoring it to the roll hoop and two latches locking it onto the windscreen frame.

Without the faff of the soft rear window, the G-series Targa's roof is considerably less fiddly to operate, at least insofar as there's only one fiddly process to complete, rather than the two fiddly processes involved in putting the soft-window model's roof in place. Whatever, it means waterproofing the Targa's cabin can be done much more easily, which will come in handy if you're caught in a sudden shower. Of course, none of this is as quick as pressing a button on the dashboard, which wasn't really much of an option in the 1970s, but the G-series Targa's solution is still better than many other cars of the era. You are obliged to get out of the car to erect the hood, though, which isn't ideal when the weather turns soggy.

You need to do so because when not in use, the hood is stowed in the luggage compartment at the nose, which is fine, providing you don't want to carry too much luggage. Not that you can. With the glass rear window, though, it's arguably easier to put your luggage on the Targa's rear bench beneath cover of the roll hoop and the beautifully curved rear window. After all, it's not as though rear-seat passengers will be



Right and below
Familiar mid-1970s Porsche trim, including tartan fabric seat inserts

missing out, because there really isn't any headroom for them. This isn't the only advantage of the fixed glass window. You see, with the roof up, it makes rear visibility better than you'll experience in a soft-window Targa, especially on a frosty day. Never mind anyone is very likely to leave one of these out on a frosty night, or that the small advantage over the soft-window Targa is non-existent when the roof is down.

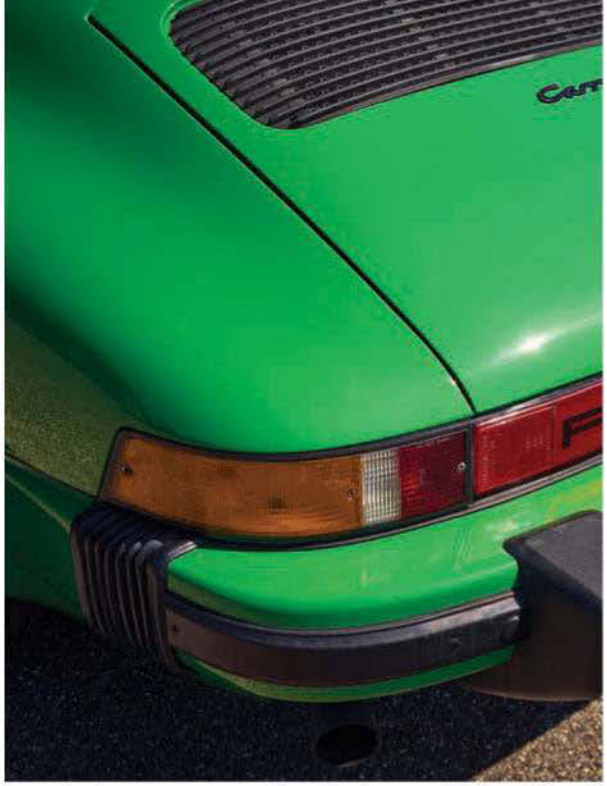
The glass window adds weight. Where a soft-window Targa barely tips scales at a thousand kilograms, our Carrera 3.0 Targa's roof adds the best part of a hundred kilos to total mass and feels less agile as a result. Still, the three-litre flat-six makes this much faster than its predecessor. The bigger engine produces 197bhp, which doesn't sound like much these days, but it was an increase of around seventy horses over the soft-window Targa's two-litre engine, which certainly makes a big difference to performance.

Where the older car feels moderately brisk when you put your foot down, the later 911 boasts genuine turn of pace, allowing the dash from rest to 62mph to take place in six-and-a-half seconds and on to top speed of 143mph, which might not be supercar speedy, but it's quick by any measure. It's certainly more than fast enough for blasts on a sunny Sunday. Better still, when you decide you've had enough acceleration and you want to get on the brakes, you'll find the G-series car's anchors way more effective than those of the soft-window Targa. They might not have the effectiveness of a modern 911's stoppers, but they do, at least, give you a sense of security.

This isn't to say the G-series Targa doesn't have its quirks. The gear lever, for example, is quite long and it feels a little baggy at first, although it slides through the gate quite nicely when you get used to it, and the clutch has plenty of feel. Perhaps more irritating for some, though, will be the fact the driving position can be a little awkward for some body shapes, with a big wheel and a lack of adjustment in the steering column.

As a driver's car, however, the Carrera 3.0 Targa is limited. It doesn't feel much more stable or more planted than the earlier 911s it replaced, and while the steering is a bit less cumbersome, particularly at low speeds, it lacks the precision of more modern 911s, especially around the straight-ahead position. While it might seem as though there's a bit of play in the steering, however, this Porsche feels natural in corners and the front wheels provide plenty of feedback to your fingertips. Drive over a bit of roadkill and you can almost work out what its last meal was.

This level of feel is useful, because the G-series 911 doesn't have much in the way of driver aids, meaning you're doing everything the old-fashioned way. This generation of 911 has a bit of a reputation for being tail-heavy, which might cause some excitement in the wet, hence need to manhandle the car down the road. Body control is good for the era, but



Facing page Three-litre flat-six was a significant jump from previous 911 boxers

the Carrera 3.0 still rolls slightly in corners, which wouldn't be the way with a GT3, but at least knowledge the weight is all on one wheel encourages you to exercise caution in your use of throttle on exit of a bend, and to manage your speed on the way in. In fact, you must manage it more than you might in a more sophisticated and more modern car, but a bit of extra forward planning is all part of the challenge and charm of driving a car like this and only serves to make it more enjoyable, as does the sound from the three-litre air-cooled engine. It feels more guttural than the two-litre unit in the soft-window Targa and has a lovely mechanical roughness to it, yet can still roar with the best of them. It's the Sean Bean of engines, if you will. The ability to remove the roof just brings you a bit closer to it. Not that you wouldn't be exposed to the sound in a coupe, of course — soundproofing is pretty minimal in any variant of G-series 911 — but when the roof is removed, the Targa makes all the sounds of driving (whether from the engine, transmission or even the environment) purer and more accessible. When the sun is beating down on a sunny summer's evening, it's all pretty much perfect.

RETRO RIDE

It's all very old-school, but in the right kind of way. This Porsche feels compact and easy to position, but there's no doubt you're driving a classic car. This has its advantages, not least the fact the suspension is not as stiff as that of some later 911s. The ride is supple and smooth, soaking up bumps on country roads. Sure, some will make their presence felt in a slightly jarring way, but the ride is noticeably more pliant than in newer air-cooled 911s. Perhaps the lack of rigidity caused by losing the roof is partly to blame, but whatever the reason, it makes for a really pleasant drive, whisking along a rural backroad, not pushing too hard, but still driving fast enough to have a bit of fun.

Even the cabin is almost perfect. Well, providing we ignore the aforementioned issues with the driving position, which makes things a little awkward for someone of my generous proportions in certain situations. The seats are much more supportive than those in the soft-window Targa, which makes life a little easier when the body starts rolling in fast corners. There are three-point seatbelts, too. You won't find those in early 911s. And though there isn't much equipment on the dashboard, it keeps the same two-bar dash design and appears bulletproof in its construction. The materials are just as premium as you'd expect. The classic fabric seat centres add to the retro aesthetic.

The external look will divide opinion, though. For some, the G-series Targa is a bit of an ugly duckling. In terms of elegance, US-mandated 'impact bumpers' don't do all that much for the car, but then again, American laws brought the Targa into existence in the first place. And to ensure the collars and cuffs match, this was the first Targa offered with a black finish on the roll hoop, complementing the bumper

design. For others, meanwhile, the G-series 911 — a line from which so many sought-after Porsches were born — is the shape serving as catalyst for their love of Zuffenhausen's finest. To them, therefore, the Carrera 3.0 Targa will always be considered cool. A desirable addition to the manufacturer's back catalogue. It's the way I see this flavour Neunelfer.

Of all the 911 Targas I've driven, the semi-open-top Carrera 3.0 is my favourite, but not for any technical reasons. This Porsche isn't spectacular. We live in world shared with the 992 Gen II Targa 4 GTS, after all, but even when compared with a 993 Targa, this is the epitome of what a classic 911 should be. It sounds fantastic, drives nicely, but with old-school charm offering solidity. All this before mentioning the glorious classic 911 design, which is particularly notable in a striking colour, such as this bright green.

What's more, while some might scoff at Porsche's 'safety convertible' marketing of yesteryear, the prospect of a drop-top with a roll hoop is appealing in a classic car lacking the safety features and standards of modern vehicles. And there's something to be said for the G-series 911's solid construction. Many of the underpinnings are galvanised, which allowed Porsche to offer a six-year anti-corrosion warranty. This was impressive at the time and should make surviving examples of the breed a little less prone to metal moths, even if the manufacturer's perforation warranty has long since expired.

All of which combines to make this a classic 911 you'll want to drive every time the sun comes out. Though it likely won't be your daily driver, it will be fractionally more than just a simple plaything. It might not have the rarity of a soft-window Targa or the more modern design and power of a 964 Targa, but the fact the Carrera 3.0 Targa (or the 911 SC Targa, for that matter) feels more special and more of an event makes it my choice when it comes to al fresco driving in a Porsche manufactured prior to introduction of the first 911 Cabriolet. In fact, if you forced me to take my pick of all the Porsches I've driven this year, I'd be hard pushed to choose between the 992 Gen II Carrera T and this. Yep, this classic Porsche really is that special. **CP**

Above The cost of buying a G-series Targa has remained relatively low, but is the tide now turning?

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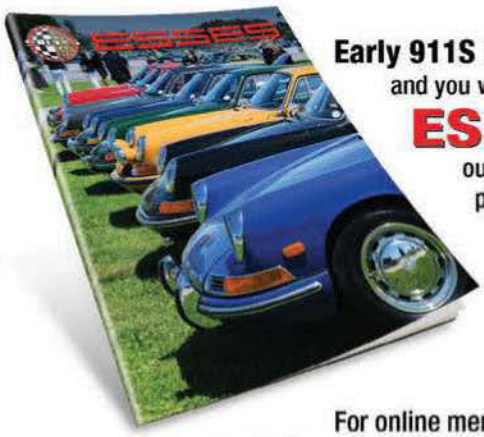

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BIRTH OF A BEAST

The 917 was a racer like no other previous Porsche. Adding to its complexity, the car had to be developed in double-quick time, making the story of its engine's creation all the more extraordinary. In the first instalment of a two-part series, we journey back in time to the late 1960s…

Words **Shane O'Donoghue** Photography **Porsche Corporate Archives**

On the facing page, you'll see a famous photograph depicting twenty-five 917s parked outside the Porsche factory in Zuffenhausen on 22nd April 1969. The cars were readied for inspection by officers of the Commission Sportive Internationale (CSI, then the independent competition arm of the FIA), who were sent to inspect and, ultimately, homologate the awe-inspiring racer. The impressive line-up is fronted by 917-001, which first appeared at the Geneva Motor Show only a month earlier. Dressed in white with green detailing on the nose and rear wing, the car is marked by its factory model number. Even now, the image suggests Porsche had been planning the moment in readiness for total domination the sportscar racing world. Nothing could be further from the truth — the 917 was conceived less than a year before the picture was taken.

The project was a tremendous effort by all involved, but not helped by the CSI's inspectors, who initially refused to homologate the car, not on technical grounds, but because Porsche simply hadn't produced the required number of vehicles. Indeed, on the occasion of the CSI's first visit to eyeball the 917, only three examples were finished. Eighteen more were in progress, though only seven sets of spares were available for scrutiny. Porsche made a strong argument for not building the full quota of twenty-five cars simply for inspection purposes, suggesting each finished build would need to be dismantled for race preparation thereafter — a costly and time-consuming process. The pitch fell on deaf ears, however, and the Stuttgart concern had no choice but to proceed with the assembly of all twenty-five units.

It mattered little the finished inspection cars could barely drive a few metres — on their return visit to Werk 1, the CSI's inspectors were suitably wowed and finally gave Porsche certification for the 917 to race. Interestingly, in an attempt to prove Porsche hadn't cut corners, the company's motorsport chief, Ferdinand Piëch, encouraged his esteemed visitors to drive any 917 they cared to select from the presented line-up. They declined his invitation.

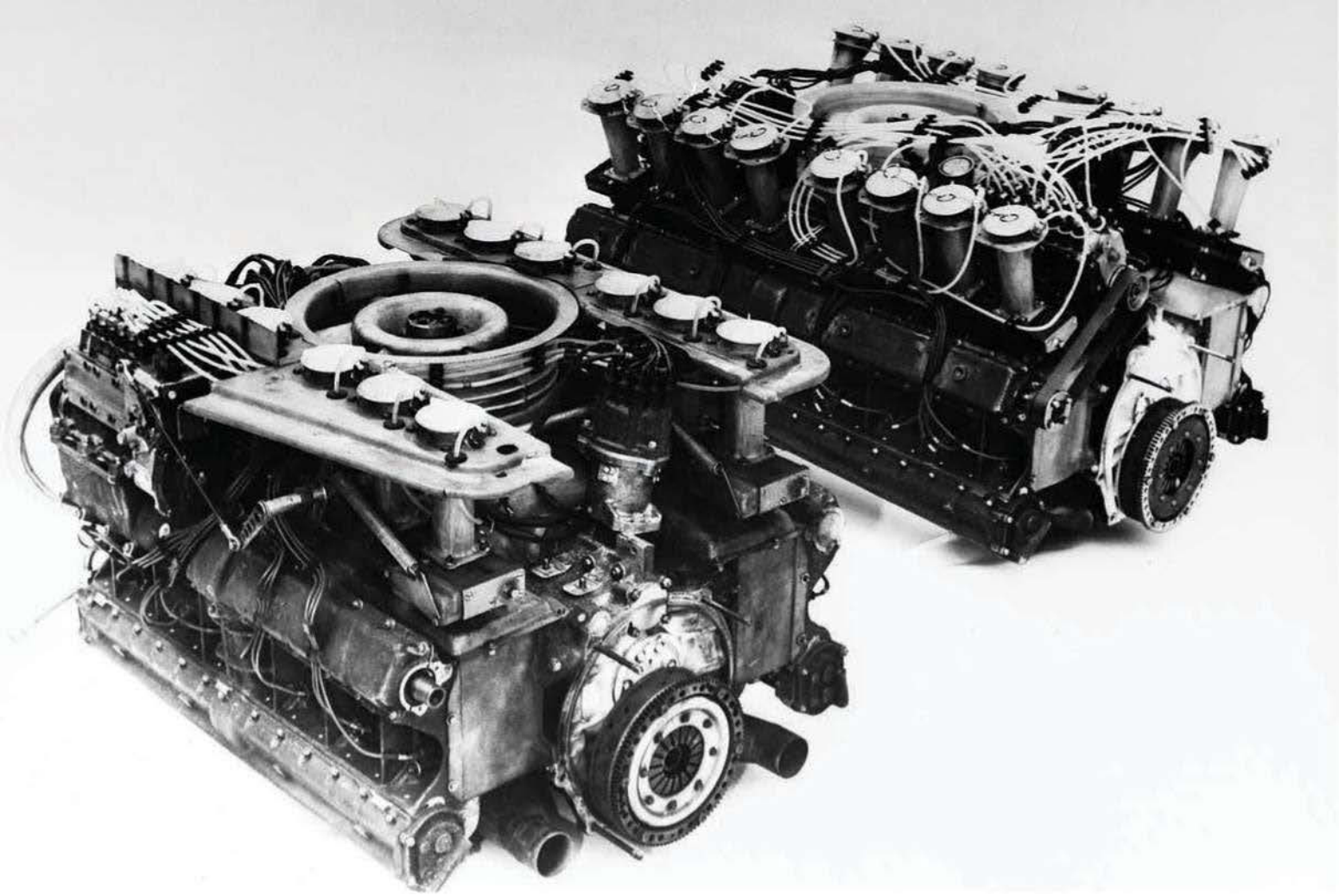
Despite the extreme deadlines, Porsche didn't compromise when it came to the 917's engineering. Instead, the company raised eyebrows by investing a colossal sum of money into the project, commissioning the fabrication of parts in several different materials, just in case the lightest version wasn't robust enough. Even so, robustness and reliability was baked into the 917 from the beginning, chiefly because the car was conceived to conquer the 24 Hours of Le Mans. With the spectacle in Sarthe in mind, plus the short period of time between drawing board conceptual designs and the finished car lining up on the grid, it seems mindboggling Porsche committed to the design of a brand-new engine in a new layout. Notwithstanding development of the Cisitalia Type 360 (a never-raced post-war Grand Prix car based on a Ferdinand Porsche design for Auto Union in 1939), the company had never created a flat-twelve. And, because of the time constraints, Porsche didn't have the luxury of producing a batch of prototype engines to evaluate and refine, as it would usually have done. Instead, the 917's engine effectively jumped from sketch to production, though Porsche managed to construct various test rigs to investigate sub-systems, such as those for cooling and fuel injection.

TWO CON-RODS ON EACH CRANK PIN, AS YOU'D FIND IN A VEE, WHICH IS WHY THIS CAN BE THOUGHT OF AS A 180-DEGREE V12

Perhaps opting for a flat-twelve wasn't an idea as radical as it might have first seemed? Obviously, Porsche had vast experience with boxer fours, sixes and, in racing, eights. The 917 needed considerably more power than all these units were capable of delivering, however, which is why a twelve-cylinder powerplant seemed logical. Air-cooling was non-negotiable, given Porsche's expertise and its use in all of the firm's road cars up to that point. Besides, a horizontally opposed engine suits air cooling, and though it could mean a wider design, it would also result in a low centre of gravity.

The most time-critical component in development of the engine, and hence the whole project, was the crankshaft. Factory engineering genius, Hans Mezger, began work on this aspect of the build in 1968, as soon as the FIA announced rule changes allowing constructors to homologate a Group 4 racer for the International Championship of Makes with only twenty-five examples of the vehicle manufactured, as opposed to the usual requirement of fifty units. Porsche had

Facing page Twenty-five 917s hastily assembled in order to comply with the FIA CSI's homologation requirements and a frustrating mandatory vehicle inspection



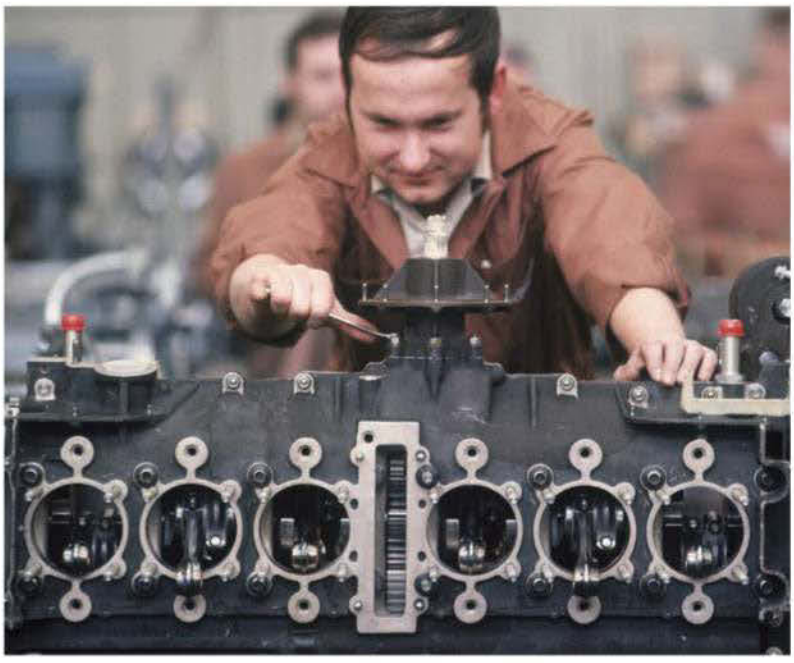
Above Twelve-cylinder engine with 4.9 litres of displacement and sixteen-cylinder engine with five litres of displacement

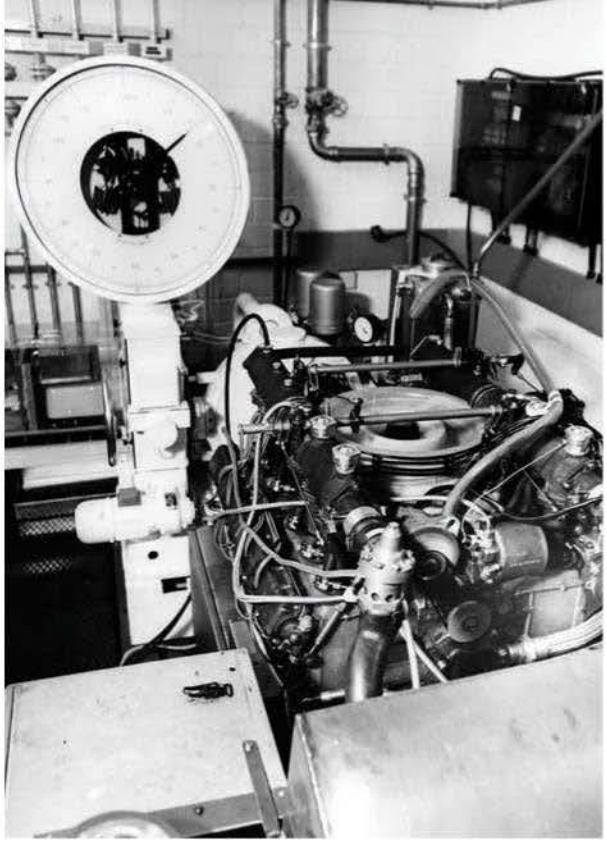
not yet committed to creating the 917, but Mezger's early decisions for its engine design may have been the catalyst for doing so — he chose to move the drive system to the middle of the crankshaft, instead of taking it from the end, as is the norm.

While not the first time this had been done, it was quite an unusual layout, albeit one bringing significant benefits. The primary reason for this design concerned torsional vibration of the crankshaft. To create the Type 908 flat-eight, Porsche had effectively added two cylinders to the Type 916 boxer-six, necessitating a longer crankshaft. It was beset with vibration issues, and it was predicted a flat-twelve crankshaft would be worse again, but while the ends of the long crankshaft would continue to vibrate in a twelve-cylinder application, the centre was relatively unaffected, meaning the valvetrain wouldn't be subject to such vibrations, much to the benefit of reliability.

The 917's flat-twelve (confusingly codenamed Type 912, the name of the period's entry-level Porsche road car) isn't a traditional 'boxer' engine, where there's considerable offset between opposing cylinders due to the carrying of the connecting rods on individual crank pins. The 917's beating heart features two connecting rods on each crank pin, as you'd find in a vee engine, which is why it can be thought of as a 180-degree V12. There are some major advantages to this design, not least the reduction in the number of bearings needing lubrication. If each cylinder had its own crank pin, there would be a requirement for fourteen bearing journals, but with just six crank pins at play, there were just eight main bearing journals in the 917's engine. This reduced the chances of lubrication issues causing failure, but also lowered friction, while allowing for a shorter and lighter crankshaft. Obviously, the engine itself was shorter than it would have been without this design, too.

Despite the shorter crankshaft, Porsche was able to introduce wide connecting rod bearings and main bearing journals, again to the benefit of reliability. The engine also made use of titanium connecting rods, an approach Porsche had established on its earlier race engines. It took a while to perfect the construction of the new crankshaft, though. Initially, it was thought the drive gear in the middle of the

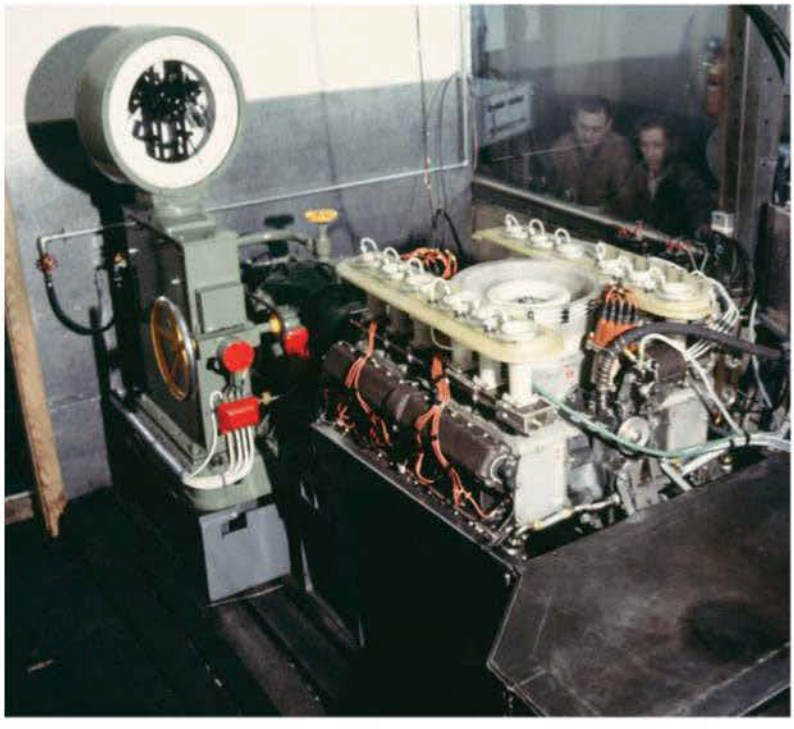




Above Testing and production of the 917 and its air-cooled engine at Werk 1

crankshaft had to be of a different steel to that of the rest, primarily because the centre needed to be extra hard. Porsche looked at welding two ends of the crankshaft to the central drive gear. In the end, however, Mezger and his colleagues came up with a method allowing for the manufacturing of a single component with specific treatment for the centre section.

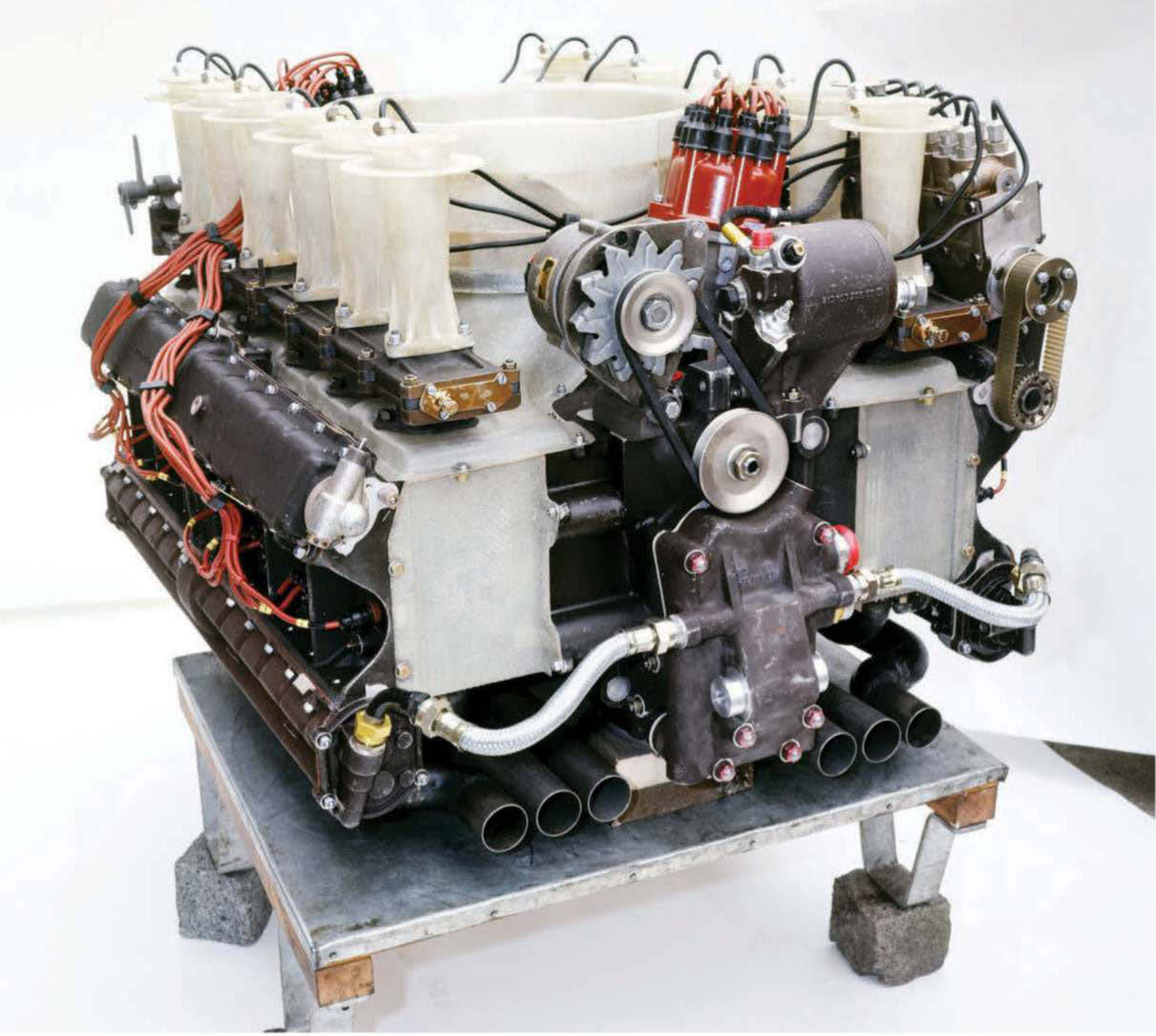
NOTABLY LARGE DIAMETER GEARS TO BRING DRIVE FROM THE CENTRE OF THE CRANKSHAFT TO THE SEPARATE EXHAUST AND INLET CAMSHAFTS



The resulting crankshaft sat in a two-piece cast magnesium crankcase held together with titanium bolts on its boundary and sixteen full-length bolts (two for each main bearing) responsible for the arduous work. The material for these bolts had to be carefully matched to the magnesium crankcase to reduce potential stresses caused by different metals expanding and contracting at different rates. The solution was a steel alloy marketed as Dilavar. Featuring up to six percent manganese and up to thirteen percent nickel, this special metal was used to produce the required bolts, which were paired with spherical washers to further relieve stress at elevated temperatures.

Driven by the chunky central gear drive was an output shaft underneath the crankshaft to the clutch at the back of the engine. Interestingly, in the name of longevity, the driven gear had one less tooth than that on the crankshaft, meaning the same teeth aren't touching on every revolution. The downside to this is a slight reduction in torque to the transmission, but as we'll see, the Type 912 engine wasn't lacking in output. It's worth noting the clutch pack diameter itself looks small given this powerplant's output. The result of the tight packaging, the design required a completely new layout for the gearbox.

Above the crankshaft is another driven shaft, running the length of the engine. Internally, this turns the two distributors and the cooling fan sitting horizontally atop the engine. The shaft pokes out from the front of the engine to also turn the alternator. It might not sound it, but this is quite an elegant layout. Fiendishly clever, however, is the gear-driven valvetrain, using notably large diameter gears to bring drive from the centre of the crankshaft to the separate exhaust and inlet camshafts either side of the engine. During assembly of



Above The 917's powerful flat-twelve

the 917's flat-twelve, it was possible to adjust the camshaft timing due to how the central gears on the camshafts were held in place. The 917's engine used two large valves per cylinder and also made use of twin-spark ignition for even more reliability. The valves were hollow and filled with sodium to help with heat transfer. Maximum inlet valve lift was 12.1 millimetres.

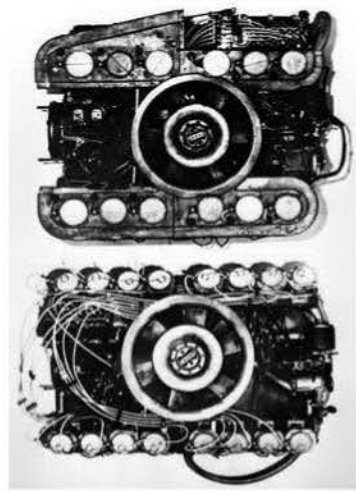
The individual cast aluminium cylinder heads were similar to those used in the Type 908 engine, though with shallower valve angles for a more compact combustion chamber. Initially, the Type 912 engine also shared the 908's cylinder measurements, with an 85mm bore and 66mm stroke for a swept capacity of 4,494 cubic centimetres (4.5 litres). This was calculated to be sufficient enough to produce competitive power, with a safety margin within the five-litre class limit should Porsche feel the need to increase capacity.

The outsides of the cylinders were finned for cooling and the bores were chrome-plated, with forged aluminium pistons within. These parts featured a domed top with valve cut-outs, two compression rings near their crown and an oil ring below the gudgeon pin.

SLIDE THROTTLES RUNNING ON STEEL BALLS WERE EMPLOYED TO ALLOW THE AIR-FUEL MIXTURE INTO THE INTAKE PORTS

The bolts holding the cylinder heads to the crankcase were also made of Dilavar, but to allow them to warm up to the right temperature, they were shrouded from the cooling air provided by the main fan.

The latter, driven via a bevel-gear arrangement from the shaft above the crankshaft, was made of fibreglass, as was the jacketing to contain and control the movement of air over



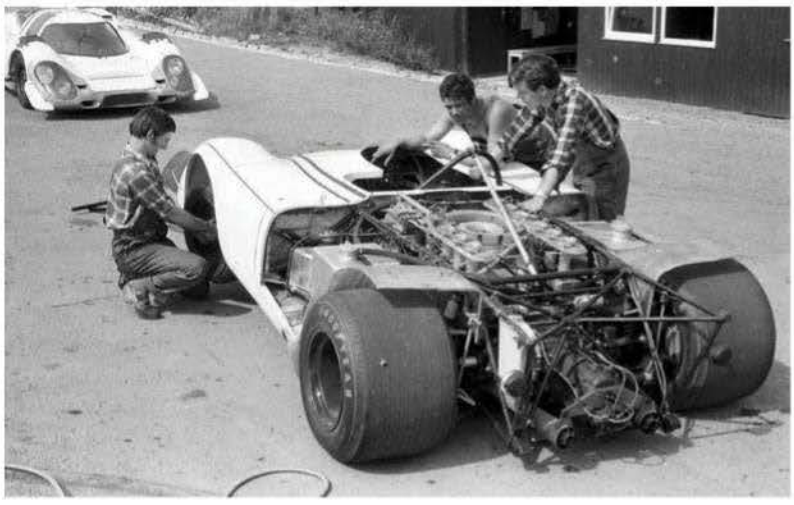
Above 917 Spyder loaded with the sixteen-cylinder unit

Right Inspection at Zuffenhausen by the FIA's CSI inspectors

Below The 917 Spyder being examined at Weissach in 1969

the engine. This can be seen in photos as a plastic-looking shroud exhibiting a semi-transparent amber finish. Not pretty, but certainly functional. It was efficient, too, the fan requiring less than twenty horsepower at peak engine speed. After all, a substantial portion of the engine cooling came from the oil.

A group of three gear oil pumps were neatly packaged into the crankcase, driven by the same shaft sending engine output to the clutch. One was a pressure pump and the other two were scavenge pumps for the crankcase. Another scavenge pump was turned by each exhaust camshaft. Using thermostatic control, when necessary, the hot oil was fed through an oil cooler mounted in the nose of the 917. Because the crankshaft had no drive system on either end, Porsche devised a method to deliver the oil for the big end bearings via the ends of the crankshaft. It was found to require much lower oil pressure than usual and was relatively independent of engine speed, much to the benefit of reliability. Oil jets to the undersides of the pistons were also integrated into the design.



At the top end of the engine, lower oil pressure was required, and lubricant was fed directly to the plain bearings of the camshafts, as well as to drillings uncovered when the bucket-style tappets descended two millimetres in their aluminium inserts. This technique, perfected by Porsche on earlier race engines, reduced the amount of oil flow required without compromising on dependable lubrication.

Bosch came through with a new space-and-weight efficient fuel pump design, though as you can see in the pictures, it's still a massive component sitting atop the engine, driven from the left-hand inlet camshaft via a toothed belt. Twelve plastic tubes delivered fuel to the plastic inlet trumpets, while slide throttles running on steel balls were employed to allow the air-fuel mixture into the intake ports — the slide throttle valves on both sides of the engine were joined by a solid linkage.

In its first racing iteration, as used in the 1969 917 LH and KH bodies (long tail and short tail, respectively), the Type 912 engine produced up to 514bhp at 8,000rpm and 340lb-ft of torque at 6,800rpm. Compression ratio was 10.5:1 and top speed was in excess of 210mph. The design was quick straight out of the box, if not one hundred percent reliable. This is forgiveable, given the timescales involved in design and production, but it only took to the end of the first season of racing for the 917's flat-twelve to prove its worth, and, as we'll explore in the next issue of *Classic Porsche*, there was much more to come from the mighty Type 912 powerplant. **CP**

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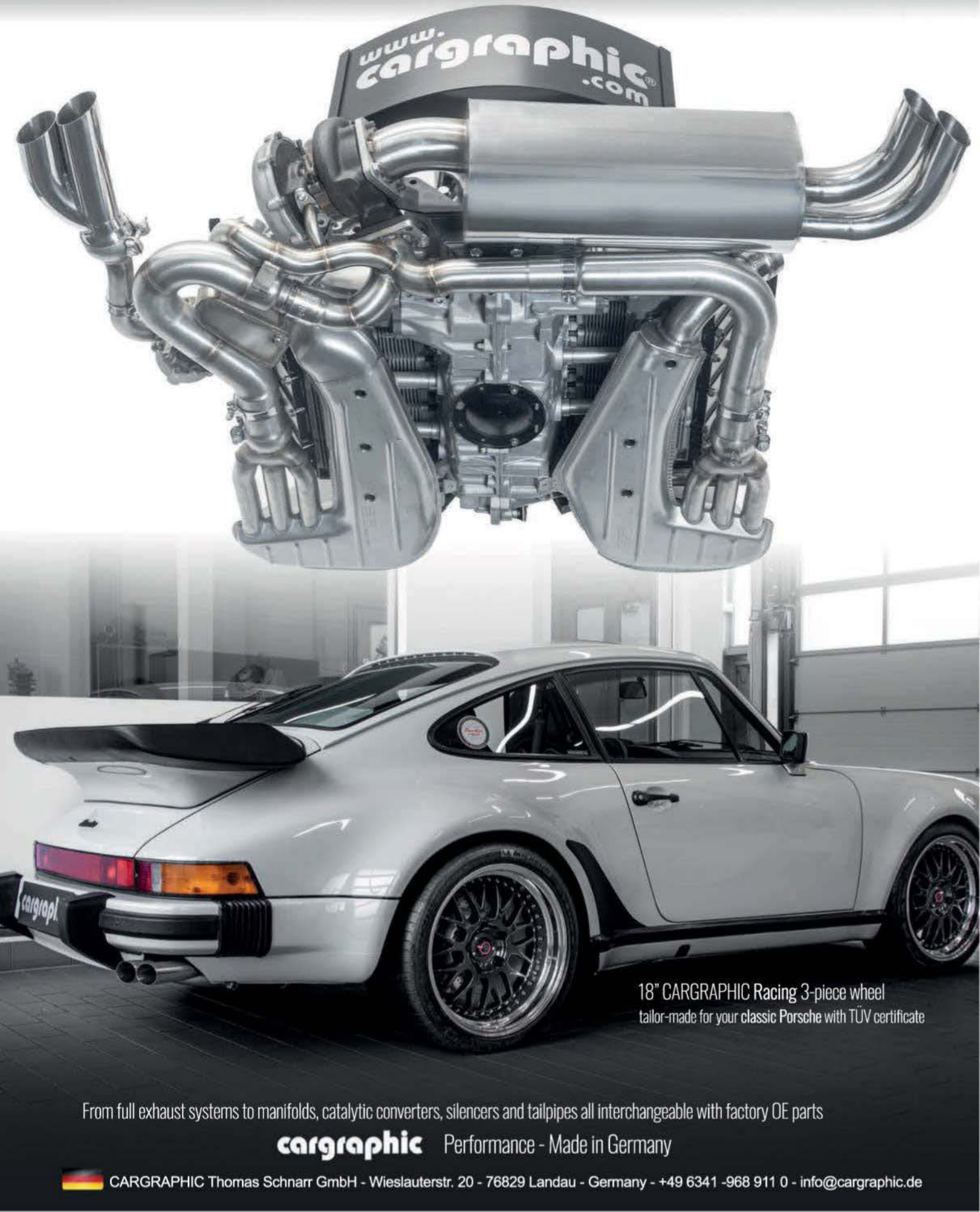

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